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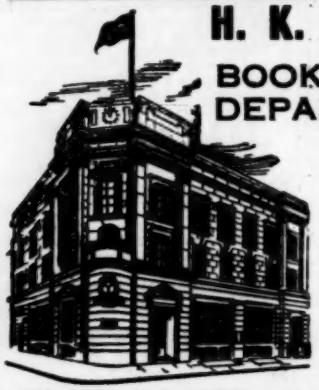

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I

Infective diseases may be associated with mental disorder either directly or indirectly. An acute infective process causes diseased states by means of the infective agent or its toxins, and during its course may produce mental symptoms dependent on toxic or organic changes in the nervous system. Examples of this direct association are: infection delirium, which appears to have an intimate relation to the specific toxæmia of the infectious disease; fever delirium, which follows the course of the fever and seems in some measure to depend on it; collapse delirium, as seen in pneumonia and erysipelas; post-infection psychoses appearing after the febrile period; and encephalitis.

When the association is indirect the mental disorder appears long after the acute infective process has subsided, but it is related to it through a chronic infective process which develops from a small unresolved residuum of the acute process by a series of exacerbations and remissions. During its course the patient may manifest mental symptoms dependent on toxic or organic changes in the nervous system as part of the chronic process.[1]

Both direct and indirect modes of relation can sometimes be traced in the same subject—e.g., epilepsy following scarlet fever may be associated with a chronic infective process which may be responsible for further mental deterioration.

When a number of cases are reviewed, they give a composite conception of the persistent spread of the chronic infective process causing a general biological degradation of which mental disorder is only one aspect.[2] The process can be set out in the following sequence:—

Acute infective disease of origin.
The focus and its reaction.
Systemic disease: first phase.
Neurological disturbances: local, sensory, motor.
Metabolic disturbances: nutrition, obesity, emaciation; insomnia; hypothermia; dehydration; glycosuria.
Psychic invasion. Disturbances of: the emotions, the instinctive mechanism, the intellect.
Psychotic continuation.
Systemic disease: second phase.
Psychic deterioration to dementia.

SYMPTOMS OF UNRESOLVED INFECTION

The early phases of one class of symptom appear together with well-developed phases of another class and, as the repetitions of the cycles of disease and dysfunction occur, each cycle widens in scope and increases in severity.

Unresolved foci most frequently follow measles, scarlet fever, and influenza, and usually take the form of persistent areas of infection in the ears, tonsils, nose or nasal sinuses. The infected tissue maintains a leucocytic reaction which appears as a discharge associated with chronic nasal catarrh. The more discharge there is, the less likelihood of further developments, but when the leucocytic reaction and discharge fail, the symptoms of toxæmia—physical or mental—are apt to appear. At different stages of the process the same agents and mechanisms can evoke completely different symptoms—e.g., nasal discharge, headache, or abnormal conduct. This fact, and the disappearance of the symptoms after the focus is treated, shows that they all depend on a common origin.

Headache is usually the first sensory symptom. Later there may be hyperæsthesia and paræsthesia affecting the fifth nerve, tinnitus aurium, cacosmia, and disturbances of taste, vision, and equilibrium. When the process undergoes an increased activity which results in mental confusion there is frequently an increase in the number and severity of sensory disturbances.[3] The local motor symptoms which may appear include affections of mastication, eye-movements, carriage of the head, and movements of the eyelids and pupils.

Common among the metabolic disturbances is a loss of fat, but occasionally obesity is seen. In the later stages dehydration and emaciation may be severe. Occasionally there is glycosuria, and not uncommonly hypothermia (Cases 2 and 12). The temperature may be persistently subnormal, and there may be complete absence of capacity to respond to a pyrogenic agent.[4 5] Insomnia is common, and in some cases may be the only symptom of the continued activity of a low-grade chronic infective process.

Symptoms of psychic invasion may appear early; sometimes they never progress beyond certain limits, while in other cases they may rapidly develop and dominate the clinical picture. In many cases it is possible to trace three cycles of symptoms, each increasing in intensity in the stage of invasion: mild depression; depression and fear; depression, fear, and mental confusion. One of the earliest indications of psychic invasion is disturbance of basal emotional tone. Variable mild depression may be the only sign for many years in some cases, while in others depression may be severe and persistent, even in the absence of sensory disturbances; in yet other cases a preliminary stage of depression may be rapidly succeeded by exaltation. Not uncommonly there is intense irritability, manifested by restlessness and agitation, and this, in association with the depression, may lead to suicide. Depressed ideation is an outcome of the state of depression.

The effect of the toxæmia on the pituitary and thyroid glands is a disturbance of endocrine balance with the result that the adrenals are activated by the fear mechanism normally reserved for emergency. Thus the fear mechanism comes into play as a result of danger not in the environment, but in the subject—the danger of the infective process. Exacerbations and remissions of fear in a hypothermic subject may be the equivalent of rises and falls of temperature in the normal subject. The patients may recognise the waves of fear and dread them. One woman who had a chronic infective process declared that she was "afraid of fear." Fear and anger phenomena alike disappear when the chronic infective process is treated.

Intellectual disturbances vary in severity. In the early cycles there may be transient mental fatigue, reduction of concentration, fleeting lapses of memory, difficulty in thinking, and periods of clouding of consciousness; in the later stages there may be mental confusion, complete disorientation, and amnesia. During periods of confusion there may be

hallucinations and delusions, and erroneous perceptions and beliefs may be formed as the result of disturbed sensory, affective, and instinctive mechanisms. For instance, a low, rumbling tinnitus aurium is perceived in a state of confusion as a sound of external origin, and is interpreted, according to the affective bias of the patient, as noises threatening to murder him for some crime or as voices paying him homage.

In the intervals between cycles of psychic invasion the mental state may be relatively normal, but the lucid intervals become shorter and the cycles longer and more severe, so that the psychotic continuation stage is reached. At best the mental condition persists in a paranoid state; in other cases it is little better than the state of acute confusion, and the term dementia can be very reasonably applied to it. It is not, however, a dementia from neuronic dissolution, but a continued confusion due to toxæmia, as is shown by the response to adequate treatment. The psychotic continuation stage may last for many years, but recovery after treatment is slower in this stage than in the stage of invasion.

It is well known that systemic disease occurring in the course of a psychosis may be accompanied by marked temporary improvement of the mental state. This amelioration only appears if the intercurrent disease is in some way directly related to the original focal infection responsible for the psychosis. If for any reason the process of infection in the focus is exacerbated, the patient may pass into another stage of systemic disease. For instance, inhalation of septic discharges may set up pneumonia. The patient has a general reaction to the chronic infection, and the lungs discharge toxæmic products derived from the original process and help to provide antibodies to combat it. The mental symptoms may therefore be relieved temporarily, so long as the lungs are doing this work, or permanently.[6]

In most cases, however, there is no amelioration of mental symptoms during the systemic disease, and they are frequently worse after it, especially if the complicating disease is the result of an entirely new infection, such as dysentery. If this systemic disease does not take an acute form, but appears as a slowly progressive degenerative change associated with dementia, treatment of the chronic infective process is useless.

Treatment

By the time mental symptoms appear the pathological state of the focus is advanced, the patient is frequently non-coöperative or resistant, the primary focus can no longer react by a discharge, "open" foci have become "closed," other foci have developed and may have become dominant, and multiple infection has taken place and has affected all the systems of the body. Treatment must first be directed towards mitigating the toxæmia and preventing further absorption by stimulating the reaction in each focus. To this end lavage and antiseptics are used locally, and alkalis and antisera are given. Calcium lactate solution in large doses by the mouth is a valuable adjunct, and appears to stimulate a focal reaction.

EFFECTS OF NON-SPECIFIC THERAPY

In 1922 I suggested that injections of colloidal calcium oleate caused or increased a reaction in or around septic foci with a resulting reduction of general toxæmia and improvement of nutrition, circulation, and mental state.[7] Other agents which have been widely used here are colloidal sulphur in oily or watery suspension [8] and T.A.B. vaccine.

The *focal effects* of an injection consist of an active stage, appearing within 24 hours as an area of increased vascularity, pain, swelling, exudation, and disturbance of function in or round any localised lesion; and a stage of resolution during which there is a progressive decrease in the inflammatory reaction until the status quo ante is reached or passed. If the sepsis is "open," the focal reaction may be enough to cause a discharge or a reduction of the persistent infection with consequent cessation or mitigation of the toxæmia and mental recovery. When, however, the sepsis is "closed," non-specific therapy is not likely to bring about recovery, especially if the focus contains necrotic material. The result is more likely to be increased toxic absorption, greater toxæmia, and exacerbation of symptoms. Colloidal calcium oleate will produce purulent reaction in dental roots and carious teeth where no such reaction was previously present. T.A.B. injections may stop a discharge from the cervix uteri or bring about renewal of discharge from nasal sinuses which had "dried up" although toxæmia persisted. Sometimes the reactivation is so acute that the discharges are hæmorrhagic (Cases 4 and 13).

A woman in a state of continued confusion and excitement received treatment for gross oral sepsis. Her mental state was so much improved that she was able to do useful work, but was subject to lapses of variable severity for which there seemed to be no causative focus. She was edentulous, and the gums were soundly healed. She was given a course of T.A.B. vaccine intravenously, and soon after developed severe confusion with considerable swelling of the left cheek. A radiogram disclosed a buried left upper canine root which was found on exploration to be septic. After its removal the confusion cleared up permanently.

A married woman of 56 with mitral valvular disease and persistent bronchitis, following pneumonia and pleurisy, was given an autogenous vaccine from sputum. Her teeth were not considered to require treatment, and she had made no complaint about them. As the course of vaccine proceeded mental symptoms appeared and increased in intensity until complete confusion obtained. At this stage she came under my notice. Examination found six teeth in a very septic state, the gums were cyanosed, and boggy with pent-up pus. These teeth were removed in three stages. On the completion of this treatment the confusion had cleared. Six weeks after the first teeth were removed there were no crepitations and no sputum, she was mentally as well as ever; memory, concentration, and reasoning power and will-power were fully restored, and she had resumed charge of household and household accounts.

Local sensory and motor disturbances.—Involvement of peripheral nerves in the exacerbation of the chronic inflammatory process may directly or reflexly produce sensory and motor disturbances of varying severity. T.A.B. is most, and colloidal calcium is least likely to evoke these disturbances, which more often develop in closed than in open sepsis. If there is a coincident exacerbation of mental confusion, the sensory disturbances may only be recognised in the guise of hallucinations. An injection of T.A.B. when the focus is closed may evoke a number of disturbances of this kind, but a similar injection after the focus has been drained surgically may produce disturbances much more limited in number, character, and severity.

Herpes.—Herpetic eruptions quite often follow T.A.B. injections, occasionally follow colloidal sulphur, but very rarely follow colloidal calcium. Herpes has also been seen, without any pyrexia, after the surgical treatment of a chronic nasal infection. The eruption usually appears after the second or third injection of T.A.B., and may increase in area after the next two or three injections and persist throughout the course, disappearing a week after the temperature

has fallen and leaving no scar. The vesicles usually follow the second and third divisions of the fifth nerve, but may appear on the first division or on the upper cervical nerves. If it is more marked on one side than on the other, the affected side is usually found to be that of the principal septic foci. The eruption with closed sepsis is usually much more profuse than that which appears in the same case after the sepsis has been drained. Herpes seems to be part of the focal reaction; infection is conveyed to the skin by the perineural lymphatics, and the skin reacts by erupting.

General effects.—The immediate general effects depend upon the nature of the agent, the mode of administration, and the condition of the patient. Generally, the more defective the focal drainage, the more severe the general effects. Colloidal calcium oleate usually produces a feeling of warmth rather than cold or shivering, but rigors have followed injections of sulphur, usually from half an hour to four hours before the maximum temperature is reached. Much more severe rigors follow T.A.B. given intravenously. Sweating may be profuse after T.A.B. or sulphur, but is more common with the former. Colloidal calcium oleate does not usually cause a rise in temperature; if pyrexia appears it is usually due to focal causes, and is seen 24–48 hours after injection. Intravenous T.A.B. produces pyrexia within one to two hours, but the rise after colloidal sulphur does not usually appear until 12 hours later. With both agents there is often one or more secondary rises, due to additional toxic absorption following activation of the focus. The persistence of a secondary pyrexial reaction is highly suggestive of the presence of a focus with inadequate drainage. Different patients show different pyrexial responses to the same material given from the same bottle on the same day by the same person. Patients can be put into five grades, according to their average responses to a course of T.A.B.:—

(1)	Those whose response	does not exceed 98·6° F.
(2)		lies between 98·6° and 100° F.
(3)		" " 100° and 102° F.
(4)		" " 102° and 104° F.
(5)		is above 104° F.

In this way the reaction indicates the condition of the heat-regulating mechanism of the patient, and it has been found that a great number of cases of mental disorder arising from chronic infective processes are hypothermic. The hypothermia may, however, improve when the infective state is treated.

Colloidal calcium oleate causes a general improvement in the peripheral circulation, and in some cases pronounced flushing. In many cases colloidal sulphur has the same effect. T.A.B., on the other hand, evokes a vasoconstriction with pallor, followed by cyanosis and vasodilatation. Calcium has no appreciable effect on the pulse. Sulphur causes a slight increase of rate which rarely exceeds 120. T.A.B. intravenously usually increases the pulse-rate, even if there is no great pyrexia. The disparity between pulse and temperature may, however, disappear when the septic state is treated.

Nausea and vomiting not uncommonly follow T.A.B. injections, but are not met with when the other agents are used. In many cases oral, nasal, or pharyngeal discharges have set up gastric irritation; as a rule the disturbances are of short duration. There may be increased peristalsis, with frequent relaxed and even watery stools, after T.A.B., and occasionally after sulphur. This suggests the presence of a non-specific focal reaction round secondary open foci in the intestinal mucosa; masses of muco-pus are often found in the returns of continuous colon irrigation after T.A.B. Appendicitis or cholecystitis has never been activated in any one of the many hundred cases treated.

THE THERAPEUTIC RÔLE OF INDUCED PYREXIA

Pyrexia is usually such a striking result of non-specific agents that the benefit following their use is usually ascribed to the heat produced in the tissues rather than to the agent and the associated focal reaction. In our series there were patients who seemed to improve in direct relation to the pyrexia they experienced, but there were others who did not improve, although they had similar rises of temperature; some of them were actually worse. Yet these same cases recovered later when their foci were treated surgically, with or without non-pyrogenic non-specific therapy. The pyrexia induced is not high enough to destroy the organisms in septic foci, and consideration of these cases has led us to take the view that the pyrexia itself is not the cause of recovery. It is merely the response of the heat-regulating mechanism to the real therapeutic factor—the non-specific agent. It is an indicator of the activity of the agent and a measure of the efficiency of the heat mechanism. That efficiency can be reduced in toxæmic conditions, so that the grade of pyrexial response indicates the severity of the general toxæmia. The resolution of septic foci may be followed by improved efficiency in the heat mechanism, and this improvement is often associated with the general metabolic improvement, and so with improved mental capacity.

SURGICAL TREATMENT

The removal and drainage of septic foci is an essential part of any treatment. Old exudates and necrotic material must be removed, and provision made for the escape of discharges already present or those which may appear as the reaction to specific or non-specific therapy. The closed focus must be be made open and must be kept open for some time. In some cases antiseptic irrigation or temporary drainage is sufficient; in others symptoms reappear as soon as the drainage opening is closed. It is a remarkable fact that there has been very little if any exacerbation reaction with the Watson-Williams technique, although in many cases of mental disorder this technique has been practised for the six sinuses under local anæsthesia only.

The combination of surgical treatment and non-specific therapy was described in 1927[10] and in subsequent communications.[11 1 4 5 8] There is considerable variation as to the situation, nature, and extent of the responsible infective process in these cases, but they all have one point in common: the infective process has been in existence for a considerable period before mental symptoms are shown. It is therefore not surprising that surgical measures alone are insufficient to bring about recovery of the whole body from the toxæmia and of the focal tissues from local poisoning. The continued application of powerful non-specific agents, after the focus has been made "open," causes a severe but effective reaction in the disease tissues, followed by recovery. In cases where the local tissues can still maintain a good leucocytic reaction, milder non-specific agents, combined with surgery, may be sufficient to stimulate a curative focal reaction.

Colloidal calcium oleate is the mildest of the three agents; it is slow in action and does not cause serious discomfort at the inoculation site. Its general effects

are the least striking, but its focal effects are valuable. It is especially useful in cases where it is desirable to stimulate a focal reaction slowly, and to avoid putting a stress on the circulatory mechanism. For these reasons it is useful in the early stages of treatment. T.A.B., when given intravenously, is the most rapid and most powerful of the three agents in evoking the general and focal phenomena of the non-specific reaction. Care must be exercised in the selection of the case for its use, as well as in its administration, on account of the stress put on the circulatory mechanism.[9] Colloidal sulphur is slower in action and causes discomfort—which passes away later—at the site of intramuscular inoculation, but has little or no untoward effect on the circulation. In some cases it has appeared to have had a remarkable healing effect on persistent discharging nasal sinuses, causing cessation of discharge and diminution of toxæmia.

In the second part of this paper cases in illustration of the value of non-specific and specific therapy will be detailed.

PROGNOSIS IN ACUTE NEPHRITIS IN CHILDHOOD *

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IN discussing the prognosis of acute nephritis in childhood, one is at the outset confronted with certain difficulties when trying to assess the data of previous workers. In the first place, the basis on which an opinion has been arrived at regarding recovery or the presence of still active disease is not by any means uniform, while renal function tests have not invariably been carried out—that is to say, no set standard has so far been generally adopted by all observers. A further and probably greater cause of confusion arises from the question of nomenclature. Not infrequently, for example, observers appear to have included in a series reported as "acute nephritis," certain cases which in all probability should more properly not have been so included; furthermore, in many instances no case notes are given, and thus the reader is unable to form for himself a definite opinion in regard to the exact entity in question.

Such difficulties occur when reference is made to the recent papers dealing with the subject of prognosis in acute nephritis in childhood by Osman,[1] Paterson and Wyllie,[2] and Lyttle and Rosenberg,[3] and to an earlier study by Hill.[4] On this account no critical analysis of these papers will be made here, as an accurate comparison of their figures is impossible. Both Osman [1] and Paterson and Wyllie,[2] however, give a prognosis more gloomy than the actual facts they publish appear to justify, while Lyttle and Rosenberg [3] and Hill [4] give a moderately good prognosis. In a still more recent paper by Guild,[5] a very good prognosis is given for cases clearly defined, and described as "acute glomerular nephritis." The term "acute glomerular nephritis" is, however, a slightly misleading one, since the glomeruli are never found to be solely involved.

* From the Children's Department, the London Hospital.

The cases quoted in this study—which correspond closely with those of Guild [5]—are referred to simply as "acute nephritis," without qualification, the criteria for this diagnosis being the presence in the urine of albumin, blood (usually but not necessarily macroscopic), and casts, either occurring suddenly or following shortly upon an acute illness. As well as these urinary abnormalities, there frequently occur at the outset fever, oliguria, some degree of œdema, an elevation of blood pressure, an increase in the blood-urea, and, in addition, impairment of kidney function as evidenced by renal function tests. Cases of nephrosis—sometimes considered identical with those designated "tubular nephritis"—cannot be properly included, since they differ clinically from the type of case here described, and tend, even if of sudden onset, to run a subacute or chronic course (Davison and Salinger,[6] Capon [7]). Nephrosis, which is rare, is probably a degenerative condition of the kidney, and may be secondary to a general metabolic disorder; it is probably not a primary real disease at all. The use of such terms as "acute glomerular nephritis," "acute tubular nephritis," "acute parenchymatous nephritis," and "acute exudative nephritis" appears to be of no great practical value. In no case does one find pathologically any single type of renal structure exclusively involved. Pathological study of the kidneys of cases coming to autopsy is obviously of the greatest importance, but there seems to be no doubt that at any rate in discussing prognosis a terminology based on clinical observations is preferable. The term "acute hæmorrhagic nephritis," although emphasising only one outstanding clinical characteristic, is useful when applied to the type of case discussed by Wyllie and Moncrieff,[8] in which the albuminuria is slight in comparison with the amount of blood present, and in which they suggest that the lesion may be embolic in origin. It serves to differentiate these cases, some of which may perhaps be regarded as examples of a form of "focal nephritis," [7 9] from those in which the damage is presumably more widespread, and to which one may well allude as "acute diffuse nephritis"; the prognosis of this latter type is, as a rule, not as good as that of the former. It is probably true to say that the views on nephritis and the classification of renal disease put forward by Volhard and Fahr have had considerable influence on modern work on this subject and merit careful attention. Generally speaking, however, the subdivision of acute nephritis introduces of necessity classifications which are apt to be complex and to confuse the issue. It would therefore appear that the simple term "acute nephritis" is adequate for every type of case displaying features in conformity with the criteria for diagnosis already stated.

In general there appears to be agreement as to the frequency with which acute nephritis is associated with upper respiratory infections, especially tonsillitis and cervical adenitis, and further as to the fact that neither the severity of the original attack nor the length of stay in hospital has any definite influence on the ultimate prognosis. These findings are exemplified and confirmed by the cases reported below.

Scope of the Inquiry

This study embraces all those children suffering from acute nephritis who were admitted as in-patients to the children's department of the London Hospital during the period of three years from January, 1927, to January, 1930. Cases admitted

after this latter date are not included, since it seemed advisable, from the point of view of prognosis, that all patients should have been discharged from hospital for a minimal period of 18 months before their final re-examination. During the period under consideration one child suffering from Hodgkin's disease—from which he eventually died—developed what appeared to be acute nephritis, and was treated as an in-patient. His nephritis cleared up, but, as it was necessarily complicated by the primary disease, his case is excluded entirely from this study. The cases in this series number 29 in all, of whom two died. Although on clinical grounds these two cases were diagnosed as acute nephritis, there is some doubt on pathological grounds as to whether they were primarily of this nature; this will be referred to later. The remaining 27 patients remained in hospital for periods varying from two and a half to fifteen weeks, and were all discharged either free from symptoms and signs of renal disease, or so much improved as to be fit for ordinary activities, the 24-hourly specimen of urine showing no greater abnormality than a cloud of albumin and a few red blood corpuscles. While in hospital the patients had no special treatment, but were kept in bed, and generally speaking their intake of protein was restricted to that supplied by milk—which was given in an amount of about one pint daily—as long as gross hæmaturia persisted or many red blood corpuscles were present in the urinary deposit, or as long as there was evidence of nitrogen retention in the blood; salt was omitted from the diet of those showing œdema. No dietary restrictions were continued on account of albuminuria alone. Some of the patients were given a potassium citrate mixture, and in the case of those with unhealthy throats, especially if satisfactory progress was not being made, tonsillectomy was usually carried out.

All of these 27 children were written for when this study was undertaken, and were asked to report for further examination; several had, at any rate for a period of time, been attending the children's out-patient department for supervision. Only two cases failed to report for this re-examination; of these, one had left her previous address and was not traced, and the other failed to report without any reason being given. The former had been admitted suffering from severe purpura, in association with which she developed acute nephritis. She made good progress, but on discharge her urine still contained albumin and red blood corpuscles; unfortunately she failed to continue attendance as an out-patient, and was lost sight of. As regards the latter, her urine on discharge contained a cloud of albumin and a few red blood corpuscles, but when she was last examined as an out-patient 20 months later her general condition was good and the urine free from albumin. There remain, therefore, 25 cases which were followed through. On re-examination, in each case the child's general health was inquired into, a non-catheter specimen of the urine was tested by routine methods, including a microscopical examination of the centrifuged deposit, the blood-urea was estimated, the phenol-sulphone-phthalein excretion test and urea-concentration test were carried out (approximately 8 g. of urea being given in the latter), and the child's heart was examined and blood pressure taken. In the case of those patients who in this follow-up examination showed albuminuria, a request was made at a later date for a further early-morning specimen of urine for examination, in order to exclude albuminuria of the orthostatic type.

Case Records

The following are case notes of all the patients studied; for the sake of clarity and economy of space they are necessarily brief, and only the significant features are recorded. Under the heading of "progress" are given notes of the course of the case both during the stay in the ward and during subsequent attendance (if any) in the out-patient department. The findings on re-examination, and the conclusions arrived at in regard to recovery, are recorded with each case report.

CASE 1.—Boy, aged 5 years (No. 31595). Admitted May 3rd, 1927; discharged July 4th, 1927.

History on admission.—General malaise and swelling of cervical glands for five days. Hæmaturia for one day.

Examination.—No œdema; tonsils hypertrophied and unhealthy; fundi normal. Cardiovascular system: heart normal; blood pressure, 100/60. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·033 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	1·92%	2·1%
P.S.P. test	30%	25%	13·8%
C.cm. of urine	123	225	218

Progress.—Urine cleared up considerably in two weeks, but red blood corpuscles and casts persisted; on discharge, these still present, although no macroscopic blood.

Re-examination (Jan. 21st, 1931).—History of good general health, without urinary symptoms; tonsillectomy in 1928. C.V.S.: heart normal; B.P., 112/98. Urine: normal. Renal function: blood-urea, 0·04 per cent.; urea concentration normal.

Conclusion.—Complete recovery.

CASE 2.—Girl, aged 4 years (No. 41299). Admitted May 19th, 1927; discharged July 28th, 1927.

History on admission.—Fine punctate rash five weeks previously, lasting four days, without subsequent desquamation. Sore throat five weeks' duration. Urine "thick" five days and "red" two days before admission, accompanied by swelling of feet in morning.

Examination.—Slight œdema under eyes, none elsewhere; tonsils much hypertrophied and injected. C.V.S.: heart normal; B.P., 140/90. Urine: much macroscopic blood, albumin, and a few casts (hyaline and granular) present. Renal function: blood-urea, 0·042 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	1·68%	1·68%
P.S.P. test	40%	20%	6·2%

Progress.—Urine cleared up considerably in three weeks. On discharge, cloud of albumin, and a few red blood corpuscles and casts; fundi normal.

Re-examination (Jan. 21st, 1931).—History of good general health, without urinary symptoms; tonsillectomy in 1930. C.V.S.: heart normal; B.P., 102/90. Urine: normal. Renal function: blood-urea, 0·028 per cent.; urea concentration normal.

Conclusion.—Complete recovery.

CASE 3.—Girl, aged 6½ years (No. 42089). Admitted August 17th, 1927; discharged Sept. 24th, 1927.

History on admission.—Fever, shivering, and headache for four days. Swelling under eyes, and swelling of ankles for one day. No history of sore throat.

Examination.—Slight œdema under eyes; small fibrotic tonsils; fundi normal. C.V.S.: heart normal; B.P., 124/90. Urine: macroscopic blood, albumin, and casts (granular) present. Renal function: blood-urea, 0·06 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	1·8%	0·99%
P.S.P. test	28·5%	10%	trace.
C.cm. of urine	154	38	118

Progress.—Urine cleared well, no macroscopic blood being present after two weeks. August 31st: blood-urea, 0·054 per cent. Sept. 6th: only albumin and a few red blood corpuscles and casts. Sept. 12th: urine normal; P.S.P. test normal; urea concentration slightly low; B.P., 100/80.

Re-examination (Feb. 9th, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., 110/? 90. Urine: normal. Renal function: blood-urea, 0·021 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Complete recovery.

CASE 4.—Girl, aged 2½ years (No. 42139). Admitted August 30th, 1927; discharged Sept. 22nd, 1927.

History on admission.—Urine noted to be "smoky and thick," and child irritable, eight days previously.

Examination.—No œdema; tonsils small and fibrotic; swelling of left cervical glands. C.V.S.: heart normal; B.P., 88/78. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·036 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	2·88%	2·28%
P.S.P. test	15·3%	20·0%	4·0%
C.cm. of urine ..	33	52	47

Progress.—Urine cleared up somewhat; on discharge, much albumin and red blood corpuscles present, but no casts. August 24th, 1928: Urine normal; blood-urea, 0·019 per cent.; urea-concentration test normal.

Re-examination (Jan. 26th, 1931).—History of good general health, without urinary symptoms; tonsillectomy in September, 1928. C.V.S.: heart normal; B.P., 86/80. Urine: normal. Renal function: blood-urea, 0·021 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Complete recovery.

CASE 5.—Boy, aged 4½ years (No. 32863). Admitted Sept. 1st, 1927; discharged Nov. 15th, 1927.

History on admission.—Coryza and fever for one week, with vomiting, and epistaxis twice. Cough and pain in chest for one day.

Examination.—No œdema; tonsils large, unhealthy, and injected. C.V.S.: heart normal; B.P., 100/85. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·045 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	0·72%	1·26%
P.S.P. test	40%	2·8%	6·2%
C.cm. of urine ..	83	27	51

Progress.—Urine continued to show macroscopic blood and albumin. Sept. 28th, 1927: blood-urea, 0·075 per cent. Oct. 14th: tonsillectomy performed. Subsequently urine cleared up considerably, although a cloud of albumin and some red blood corpuscles and casts remained. Nov. 2nd: blood-urea, 0·03 per cent.; urea concentration and P.S.P. tests similar to those on admission.

Re-examination (Jan. 29th, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., 84/76. Urine: normal, except for occasional epithelial cells. Renal function: blood-urea, 0·039 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Complete recovery.

CASE 6.—Girl, aged 5 years (No. 42367). Admitted Oct. 18th, 1927; discharged Nov. 28th, 1927.

History on admission.—Influenza and tonsillitis one month previously. Swelling of cervical glands and fever at nights for one week. Cough, embarrassed respiration, and pain in right side of abdomen for one day.

Examination.—Pallor; no œdema; tonsils unhealthy; no cervical adenitis; impaired percussion note and diminished breath sounds over right lung. C.V.S.: heart normal. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present.

Progress.—Oct. 23rd, 1927: developed pneumococcal peritonitis, and was operated upon. Nov. 18th: urine contained albumin, red blood corpuscles, and casts; culture of urine had shown no pneumococci. Dec. 6th: readmitted from convalescent home with right-sided empyema; normal recovery followed operation. Dec. 18th: urine contained trace of albumin and a few red blood corpuscles. Jan. 18th, 1929: urine contained trace of albumin, but no red blood corpuscles or casts; blood-urea, 0·019 per cent.; B.P., 102/95; tonsils ragged.

Re-examination (Feb. 19th, 1931).—History of good general health, without urinary symptoms. Receiving out-patient treatment for tuberculous cervical glands of 16 months' duration. No history of sore throats. C.V.S.: heart normal; B.P., 100/88. Urine: normal. Renal function: blood-urea, 0·022 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Complete recovery.

CASE 7.—Boy, aged 6 years (No. 33097). Admitted Oct. 19th, 1927; discharged Jan. 12th, 1928.

History on admission.—Tonsillitis three weeks previously, followed a week later by varying puffiness under eyes. Urine "bright red" for one day.

Examination.—No œdema; tonsils large and unhealthy. C.V.S.: heart normal; B.P., 120 systolic. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·064 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	1·08%	1·26%
P.S.P. test	28·5%	12·5%	6·2%
C.cm. of urine ..	50	66	56

Progress.—Urine failed to clear up satisfactorily, although blood-urea fell to 0·024 per cent. (Dec. 2nd). Dec. 18th: tonsillectomy performed. Jan. 10th, 1928: urine contained cloud of albumin, but no blood.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	1·8%	1·32%
P.S.P. test	40%	14·1%	3·8%
C.cm. of urine ..	66	71	74

Feb. 24th, 1928: Blood-urea, 0·028 per cent. While under observation in out-patient department until January, 1930, albumin and a few red blood corpuscles and casts present in urine from time to time.

Re-examination (July 28th, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., ? 75 systolic (difficult to take). Urine: albumin, a cloud; occasional leucocytes; otherwise normal. Renal function: blood-urea, 0·03 per cent.; urea concentration and P.S.P. test normal.

Dec. 10th, 1931: Urine: albumin, a heavy cloud; occasional red blood corpuscles and leucocytes.

Conclusion.—Some renal damage.

CASE 8.—Boy, aged 5½ years (No. 33105). Admitted Oct. 20th, 1927; discharged Nov. 7th, 1927.

History on admission.—Headache and vomiting for four days.

Examination.—Child drowsy and pyrexial; throat normal. C.V.S.: heart normal, except for accentuation of aortic second sound. Urine: albumin, red blood corpuscles, and casts (hyaline and granular) present. Renal function: blood-urea, 0·018 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	1·47%	2·04%
P.S.P. test	33·3%	26·6%	6·2%
C.cm. of urine ..	114	160	50

Progress.—Rapid recovery; urine became normal on routine testing within a week.

Re-examination (Jan. 26th, 1931).—History of good general health, without urinary symptoms; tonsillectomy in March, 1930. C.V.S.: heart normal; B.P., 75/55. Urine: albumin, a faint trace; occasional leucocytes and epithelial cells; otherwise normal. Renal function: blood-urea, 0·019 per cent; urea concentration and P.S.P. test normal.

Dec. 10th, 1931: Urine: albumin, a trace; occasional leucocytes and calcium oxalate crystals.

Conclusion.—Recovery.

CASE 9.—Girl, aged 6 years (No. 42521). Admitted Nov. 15th, 1927; discharged Dec. 27th, 1927.

History on admission.—Sore throat six weeks and measles four weeks previously. Vomiting eight days previously, lasting three days. Hæmaturia for one week.

Examination.—No œdema; tonsils small and fibrotic. C.V.S.: heart normal. Urine: albumin, red blood corpuscles, and casts (hyaline and granular) present. Renal function: blood-urea not estimated.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	2·46%	1·08%
P.S.P. test	22·2%	15·4%	9%
C.cm. of urine ..	20	30	78

Progress.—Urine cleared up well. Dec. 1st, 1927: urine contained a trace of albumin, but no red blood corpuscles; urea concentration and P.S.P. test unchanged.

Re-examination (Jan. 29th, 1931).—History of good general health, without urinary symptoms: tonsillectomy in 1928; scarlet fever in 1929. C.V.S.: heart normal; B.P., 98/78. Urine: albumin, a trace; occasional leucocytes, otherwise normal. Renal function: blood-urea, 0·034 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Recovery.

CASE 10.—Boy, aged 4½ years (No. 33355). Admitted Dec. 5th, 1927; discharged Jan. 30th, 1928.

History on admission.—Tonsillectomy performed July, 1925. Hæmaturia noted December, 1925, and child treated in Queen's Hospital for Children for subsequent year; after pyelography left kidney explored, but not removed. December, 1926: urine contained much albumin, trace of blood, no casts. Well until one month before admission, when hæmaturia recurred with vomiting and fever, and slight puffiness under eyes; no frequency or pain on micturition.

Examination.—No œdema. C.V.S.: heart normal. Urine: albumin, a cloud; a few red blood corpuscles, but no casts present. Renal function: blood-urea, 0·045 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	3·48%	3·36%
P.S.P. test	40%	20%	4%
C.cm. of urine ..	15	26	22

Radiogram of urinary tract negative. Wassermann reaction negative.

Progress.—Urine failed to clear properly. Jan. 10th, 1928: macroscopic blood and casts present; B.P., 105/65.

Re-examination (Feb. 2nd, 1931).—History of good general health, but colds had been accompanied by puffiness under eyes and passage of dark cloudy urine. In October, 1929, in-patient in St. Thomas's Hospital for six days: heart normal except for localised apical systolic murmur; urine contained albumin but no blood or casts; urea concentration normal. C.V.S.: heart normal except for soft squeaky murmur localised at apex; B.P., 112/80. Urine: albumin present; otherwise normal. Renal function: blood-urea, 0·024 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Recovery.

CASE 11.—Girl, aged 3 years (No. 40414). Admitted March 15th, 1928; discharged April 19th, 1928.

History on admission.—Frequency of micturition three months previously. Cervical abscess incised two weeks previously. Swelling of feet and ankles for six days. No hæmaturia noted.

Examination.—Slight œdema of feet and under eyes; tonsils enlarged, ragged, and injected; cervical glands enlarged; fundi normal. C.V.S.: heart normal; B.P., 100/90. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·045 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	1·68%	1·68%
P.S.P. test	28·5%	12·5%	8·0%
C.cm. of urine ..	83	51	57

Progress.—Child progressed well, and urine became normal on routine testing in two weeks. April 10th, 1928: urine: albumin, a cloud; no red blood corpuscles.

Re-examination (Feb. 2nd, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., 88/74. Urine: albumin, a cloud; otherwise normal. Renal function: blood-urea, 0·021 per cent.; urea concentration and P.S.P. test normal.

Dec. 10th, 1931: Urine: albumin, a faint trace; occasional leucocytes and calcium oxalate crystals.

Conclusion.—Recovery.

CASE 12.—Boy, aged 3½ years (No. 30948). Admitted May 24th, 1928; discharged August 1st, 1928.

History on admission.—Measles six weeks previously. Enlarged cervical glands and pain in right ear four weeks previously, followed by otorrhœa. Hæmaturia for four weeks.

Examination.—No œdema; tonsils enlarged; no cervical adenitis. C.V.S.: heart normal, except for slight accentuation of aortic second sound; B.P., 110/70. Urine: albumin, red blood corpuscles, and a few casts (hyaline and granular) present. Renal function: blood-urea, 0·045 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	2·52%	2·7%
P.S.P. test	33·3%	13·3%	6·6%
C.cm. of urine ..	78	50	66

Progress.—Child failed to progress entirely satisfactorily; tonsillectomy performed July 19th, 1928; on discharge urine contained a cloud of albumin and a few red blood corpuscles, but no casts.

Re-examination (Feb. 19th, 1931).—General health good, except for slight feverish attacks during the year following discharge; no urinary symptoms. C.V.S.: heart normal; B.P., 85/65. Urine: albumin, a trace; otherwise normal. Renal function: blood-urea, 0·025 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Recovery.

CASE 13.—Boy, aged 7 years (No. 30865). Admitted May 31st, 1928; discharged August 11th, 1928.

History on admission.—Puffiness under eyes for ten days. Headache and frequency of micturition for three days. no sore throat.

Examination.—Slight œdema under eyes, none elsewhere; throat normal. C.V.S.: heart normal, except for slight accentuation of aortic second sound; B.P., 105/80. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·06 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	2·34%	2·28%
P.S.P. test	40%	16·6%	6·6%
C.cm. of urine ..	79	60	69

Progress.—Œdema disappeared rapidly; urine cleared up slowly, though on discharge albumin and red blood corpuscles still present.

Re-examination (Feb. 16th, 1931).—History of good general health, with headaches but no urinary symptoms; optic discs normal. C.V.S.: heart normal, except that aortic second sound was still slightly accentuated; B.P., 110/95. Urine: albumin, a cloud; otherwise normal. Renal function: blood-urea, 0·03 per cent.; urea concentration normal; P.S.P. excretion slightly low.

Dec. 10th, 1931: Urine: no albumin; many calcium oxalate crystals present.

Conclusion.—Probably complete recovery.

CASE 14.—Girl, aged 3 years (No. 41044). Admitted July 3rd, 1928; discharged July 31st, 1928.

History on admission.—Urine noted to be "red" for three days; quantity normal.

Examination.—No œdema; throat normal. C.V.S.: heart normal. Urine: macroscopic blood, albumin, and a few casts (hyaline and granular) present.

Progress.—Urine cleared up well, and no macroscopic blood was noted after ten days. July 29th, 1928: albumin, red blood corpuscles, and a few casts present.

Re-examination (Feb. 4th, 1931).—History of good general health, except for feverish attacks; during chicken-pox in November, 1930, urine noted to be "reddish-pink" on one occasion only. C.V.S.: heart normal, except for slight accentuation of aortic second sound; B.P., 78/58. Urine: normal. Renal function: blood-urea, 0·042 per cent. (N.B.—Blood sample for this estimation was taken about 15 minutes after urea had been given); urea concentration and P.S.P. test normal.

Conclusion.—Complete recovery.

CASE 15.—Boy, aged 6 years (No. 31181). Admitted July 24th, 1928; discharged August 30th, 1928.

History on admission.—Tonsillitis 2 weeks previously, subsequent to which albuminuria was discovered.

Examination.—No œdema; tonsils large and injected. C.V.S.: heart normal, except for accentuation of aortic second sound; B.P., 130/80. Urine: albumin, red blood corpuscles, and casts (hyaline and granular) present. Renal function: blood-urea, 0·085 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	2·16%		2·43%
P.S.P. test	12·5%		10%
C.cm. of urine ..	30		32

Progress.—Urine cleared up satisfactorily; on discharge, albumin and a few red blood corpuscles still present. Re-admitted for tonsillectomy Oct. 5th, 1928, when urine contained albumin and an occasional red blood corpuscle, but no casts; blood-urea, 0·021 per cent.; urea concentration and P.S.P. test normal. Sept. 25th, 1929: urine, trace of albumin; B.P., 129/100. May 16th, 1930: urine free from albumin.

Re-examination (March 5th, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., 105/80. Urine: albumin, a faint trace; very occasional red blood corpuscles. Renal function: blood-urea, 0·033 per cent.; urea concentration normal, P.S.P. excretion impaired.

Dec. 15th, 1931: Urine: no albumin; occasional leucocytes and epithelial cells.

Conclusion.—? Renal damage.

CASE 16.—Boy, aged 3 years (No. 31188). Admitted July 25th, 1928; discharged August 30th, 1928.

History on admission.—Measles six months previously. Cervical adenitis two weeks previously. Urine noted to contain blood for two days. Pain on micturition and pain in neck for one day; one vomit.

Examination.—No œdema; throat normal; no cervical adenitis. C.V.S.: heart normal; B.P., 110/60. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·052 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration ..	—	2·22%	2·22%
P.S.P. test	28·5%	20%	9%
C.cm. of urine ..	46	72	83

Progress.—Child progressed satisfactorily, and urine cleared well. June 25th, 1929: urine free from macroscopic blood and albumin; blood-urea, 0·033 per cent.; urea concentration showed slight impairment. P.S.P. test normal.

Re-examination (Feb. 4th, 1931).—History of good general health, without urinary symptoms; tonsillectomy in November, 1928. C.V.S.: heart normal; B.P., 72/60. Urine: albumin, a faint trace; otherwise normal. Renal function: blood-urea, 0·03 per cent.; urea concentration and P.S.P. test normal.

Dec. 18th, 1931: Urine normal.

Conclusion.—Complete recovery.

CASE 17.—Girl, aged 3 years (No. 41490). Admitted Sept. 27th, 1928; discharged Nov. 21st, 1928.

History on admission.—Attack of diarrhœa three weeks previously. Vomiting for three days.

Examination.—No œdema or abnormal physical signs. C.V.S.: heart normal. Urine: macroscopic blood, albumin,

and casts (hyaline and granular) present. Renal function: blood-urea, 0·033 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	2·04%	2·16%
P.S.P. test	28·5%	13·3%	8·3%
C.cm. of urine	67	50	50

Progress.—Child progressed well, and urine cleared up satisfactorily, but still contained albumin and red blood corpuscles on Nov. 2nd, 1928. May 14th, 1929: urine free from albumin; blood-urea, 0·027 per cent.

Re-examination (Feb. 4th, 1931).—History of good general health, without urinary symptoms. Throat normal. C.V.S.: heart normal; B.P., 100/76. Urine: albumin, a faint trace; very occasional red blood corpuscles. Renal function: blood-urea, 0·051 per cent. (N.B.—Blood sample for this estimation was taken 25 minutes after urea had been given); urea concentration and P.S.P. test normal.

Dec. 18th, 1931: Urine: a few leucocytes, otherwise normal; blood-urea, 0·024 per cent.

Conclusion.—Complete recovery.

CASE 18.—Girl, aged 2 years (No. 41543). Admitted Sept. 30th, 1928; discharged Oct. 19th, 1928.

History on admission.—"Pimply rash" (treated with sulphur) one month previously. On day before admission fell on head, and on day of admission had a convulsion.

Examination (Sept. 30th, 1928).—No fracture of skull; a few papular spots on limbs; urine contained macroscopic blood, albumin, and casts (hyaline and granular). Oct. 5th (on transfer to medical ward): no œdema; tonsils enlarged and injected. C.V.S.: heart normal; B.P., 120 systolic. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·048 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	2·76%	—
P.S.P. test	40%	12%	—
C.cm. of urine	34	24	no spec.

Progress.—Child progressed satisfactorily. Oct. 18th: urine normal on routine testing.

Re-examination (August 13th, 1931).—History of good general health, without urinary symptoms. Diphtheria in July, 1931. No sore throats. C.V.S.: heart normal; B.P., 100/90. Urine: albumin, a trace; oxalates and urates; very occasional red blood corpuscles present. Renal function: blood-urea, 0·022 per cent.; urea concentration normal; P.S.P. excretion impaired.

Dec. 15th, 1931: Urine: no albumin; occasional red blood corpuscles, leucocytes, epithelial cells, and stellar phosphates.

Conclusion.—Some renal damage.

CASE 19.—Boy, aged 3 years (No. 40198). Admitted Feb. 6th, 1929; discharged April 14th, 1929.

History on admission.—Pain in back of neck and swelling under eyes for one week; albumin and macroscopic blood found in urine at onset. Tonsillitis and swelling of cervical glands for four days.

Examination.—No œdema; tonsils hypertrophied, ragged, and inflamed. C.V.S.: heart normal. Urine: albumin, red blood corpuscles, and casts (hyaline and granular) present. Renal function: blood-urea, 0·049 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	2·46%	3·66%
P.S.P. test	28·6%	14·3%	6·6%
C.cm. of urine	46	46	32

Progress.—Boy progressed well. Feb. 28th, 1929: B.P., 112/80. March 1st: urine still contained albumin and red blood corpuscles. March 9th: blood-urea, 0·022 per cent. March 21st: tonsillectomy performed.

Re-examination (March 5th, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., 100/80. Urine: normal. Renal function: blood-urea, 0·027 per cent.; urea concentration and P.S.P. test both show slight impairment.

Conclusion.—? Renal damage.

CASE 20.—Boy, aged 2 years (No. 40268). Admitted Feb. 22nd, 1929; discharged March 19th, 1929.

History on admission.—Puffiness under eyes and vomiting six weeks previously. Noted to be passing very little urine four weeks previously. Puffiness of legs and feet for three weeks.

Examination.—No œdema; throat normal. C.V.S.: heart normal; B.P., 120/70. Urine: albumin, red blood corpuscles, and casts (hyaline and granular) present. Renal function:

	1 hr.	2 hr.	3 hr.
P.S.P. test	25%	25%	—
C.cm. of urine	26	20	—

Progress.—Child progressed well, urine clearing up satisfactorily. March 6th, 1929: trace of albumin, but no blood present; urea concentration: 1 hr. 3·48 per cent. (27 c.cm. urine); 2 hrs. 3·0 per cent. (45 c.cm. urine).

Re-examination (Feb. 9th, 1931).—History of good general health, with no urinary symptoms except occasional enuresis. C.V.S.: heart normal, except for soft squeaky systolic murmur at base; B.P., 92/75. Urine: faint haze of albumin, occasional leucocytes and epithelial cells. Renal function: blood-urea, 0·024 per cent.; urea concentration and P.S.P. test normal.

Dec. 10th, 1931: Urine: no albumin; a few leucocytes and epithelial cells.

Conclusion.—Complete recovery.

CASE 21.—Boy, aged 3 years (No. 30787). Admitted May 14th, 1929; discharged June 11th, 1929.

History on admission.—Sore throat and fever lasting one day eight days previously; puffiness of face noted two days later. Urine "dark red" but normal in amount for one day. Said to have vomited blood on day of admission.

Examination.—Œdema of face, none elsewhere; tonsils ragged but not inflamed; blood-stained nasal discharge. C.V.S.: heart normal; B.P., 140/85. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·057 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	2·16%	2·16%
P.S.P. test	50%	6·6%	12·5%
C.cm. of urine	32	11	37

Progress.—Hæmaturia continued. June 3rd, 1929: tonsillectomy performed. June 5th: urine still contained macroscopic blood and albumin; B.P., 120/80; blood-urea, 0·057 per cent. Child developed mumps and was discharged to infirmary.

Re-examination (Feb. 23rd, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., 95/75. Urine: normal. Renal function: blood-urea, 0·024 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Complete recovery.

CASE 22.—Girl, aged 4 years (No. 40882). Admitted June 18th, 1929; discharged August 7th, 1929.

History on admission.—Fever and vomiting two weeks previously. Headache, and blood noted in urine ten days previously. No sore throat.

Examination.—No œdema; tonsils slightly enlarged and injected. C.V.S.: heart normal; B.P., 145/90. Urine: albumin and red blood corpuscles but no casts present. Renal function: blood-urea, 0·042 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	3·06%	.....	2·82%
P.S.P. test	7·1%	.....	5%
C.cm. of urine	23	.....	28

Progress.—Urine cleared up well, and was free from albumin and blood on July 15th, 1929, when B.P. was 150/100, blood-urea 0·028 per cent., urea concentration and P.S.P. test normal. July 29th, 1929: tonsillectomy performed. August 6th, 1929: child appeared well; blood-urea, 0·024 per cent.; B.P., 135/80.

Re-examination (March 9th, 1931).—History of good general health, except for two or three attacks of cervical adenitis; no urinary symptoms or sore throats. C.V.S.: heart normal; B.P., 110/78. Urine: normal. Renal function: blood-urea, 0·027 per cent.; urea concentration normal; P.S.P. excretion very slightly impaired.

Conclusion.—Probably complete recovery.

CASE 23.—Girl, aged 3 years (No. 41026). Admitted July 18th, 1929; discharged August 19th, 1929.

History on admission.—Puffiness of face, swelling of abdomen, and vomiting for two days.

Examination.—Slight œdema under eyes, none elsewhere; tonsils ragged. C.V.S.: heart normal, except for slight accentuation of aortic second sound. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·06 per cent.

Progress.—Child progressed rapidly. July 30th, 1929: blood-urea, 0·045 per cent. August 6th: tonsillectomy performed. August 9th: urine normal; blood-urea, 0·03 per cent.

Re-examination (March 5th, 1931).—History of good general health; no urinary symptoms except some frequency in the last few weeks. C.V.S.: heart normal; B.P., systolic ? 75. Urine: normal. Renal function: blood-urea, 0·03 per cent.; urea concentration normal, P.S.P. excretion slightly impaired.

Conclusion.—Probably complete recovery.

CASE 24.—Boy, aged 3 years (No. 31291). Admitted August 20th, 1929; discharged Oct. 14th, 1929.

History on admission.—Puffiness of face and swelling of abdomen for three days. Frequency of micturition without pain, and diarrhœa, for two days.

Examination.—Some œdema of face, none elsewhere; tonsils large and injected. C.V.S.: heart normal except for accentuation of aortic second sound. Urine: macroscopic blood, albumin, and casts (hyaline and granular) present. Renal function: blood-urea, 0·048 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	1·44 %	1·5 %
P.S.P. test	2 %	1 %	0·8 %
C.cm. of urine	7	8	12

Progress.—Child improved satisfactorily. Sept. 12th, 1929: urine free from albumin and blood on routine testing. Oct. 5th: blood-urea, 0·04 per cent. Oct. 11th: urea concentration and P.S.P. test normal; B.P., 96/70.

Re-examination (August 20th, 1931).—History of good general health, except for occasional swelling under the eyes and abdominal pain; no sore throats. In December, 1930, urine said to have been "red and thick" for two or three days. C.V.S.: heart normal; B.P., 95/75. Urine: albumin, a trace; calcium oxalate crystals present; otherwise normal. Renal function: blood-urea, 0·021 per cent.; urea concentration and P.S.P. test normal.

Conclusion.—Recovery.

CASE 25.—Girl, aged 2½ years (No. 41799). Admitted Dec. 26th, 1929; discharged Jan. 18th, 1930.

History on admission.—Scarlet fever six weeks previously. Feverish attack one week previously. Urine dark and scanty for four days.

Examination.—No œdema; tonsils enlarged, injected, and unhealthy. C.V.S.: heart normal; B.P., 108/80. Urine: macroscopic blood, albumin, casts (hyaline and granular), and many leucocytes present. Renal function: blood-urea, 0·099 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	2·1 %	2·1 %
P.S.P. test	50 %	12·5 %	6·6 %
C.cm. of urine	22	30	43

Progress.—Child progressed satisfactorily, and urine became free from albumin and blood on routine tests within eight days. April 8th, 1930: urine contained no albumin, blood, or casts, but occasional leucocytes; *B. coli* cultured from urine; blood-urea, 0·033 per cent.; urea concentration and P.S.P. test normal. Nov. 1st: no œdema or frequency; urine appeared normal on routine testing; blood-urea, 0·039 per cent.; urea concentration and P.S.P. test both showed slight impairment.

Re-examination (August 20th, 1931).—History of good general health, without urinary symptoms. C.V.S.: heart normal; B.P., 105/95. Urine: albumin, a cloud; a few leucocytes. Renal function: blood-urea, 0·027 per cent.; urea concentration and P.S.P. test normal.

Dec. 15th, 1931: Urine: no albumin; a few leucocytes and epithelial cells.

Conclusion.—Complete recovery.

FATAL CASES

CASE A.—Boy, aged 9 months (No. 30707). Admitted April 30th, 1929; died May 1st, 1929.

History on admission.—Severe coryza, and feverishness for one week. Vomiting and puffiness of face for three days. Oliguria, and swelling of arms and legs for one day. Previous history negative.

Examination.—No œdema; tonsils injected but not hypertrophied; moist crepitations at apex of both lungs. C.V.S.: heart normal; B.P., 140/75. Urine: much albumin, red blood corpuscles, and leucocytes, but no casts present. Renal function tests not performed. Cerebro-spinal fluid: fluid clear, no cells; protein, 0·015 per cent.; urea, 0·024 per cent.; Wassermann reaction negative.

Progress.—May 1st, 1929: child had generalised convulsions, with loss of consciousness; four hours later twitching occurred of left face, arm, and foot; one hour later child died in semi-coma.

Post-mortem findings.—Kidneys considerably enlarged, with a pale creamy rather opaque clay-like swollen cortex; normal looking medulla; no petechiæ. Microscopically: glomeruli normal; severe tubular degeneration with much doubly refractive lipoid, and scanty patchy interstitial infiltration with round cells including a few polymorphs; no red blood corpuscles or leucocytes were seen in tubule lumina. Brain greatly congested and œdematous.

CASE B.—Girl, aged 4 years (No. 41046). Admitted July 23rd, 1929; died July 29th, 1929.

History on admission.—Child well until three weeks previously, when she complained of pain in arms and legs. Urine "dark and cloudy," but undiminished in quantity for two weeks. Puffiness of face and feet for four days. Vomiting and headache for three days. Previous history of scarlet fever at age of 2 years.

Examination.—Child drowsy; œdema of feet and ankles, and under eyes; slight shifting dullness in abdomen; throat normal; fundi normal. C.V.S.: heart not enlarged; soft systolic murmur at base; aortic second sound normal; pulmonary second sound accentuated; B.P., 165/120. Urine (catheter specimen): macroscopic blood, albumin, casts (hyaline and granular), and leucocytes present; *B. coli* cultured. Renal function: blood-urea, 0·333 per cent.

	1 hr.	2 hr.	3 hr.
Urea concentration	—	0·9 %	
P.S.P. test	Faint trace	Trace	
C.cm. of urine	8	13	

Progress.—Urine continued smoky in appearance, containing albumin, and diminished in quantity. July 29th, 1929: series of convulsions occurred, with intervals of coma, and child died.

Post-mortem findings.—Kidneys moderately enlarged and œdematous. Microscopically there was an active inflammatory lesion of an intense kind; a diffuse interstitial fibrosis, however, was present, and suggested that the inflammation was of longer duration than in a typical case of acute nephritis. Left ventricle slightly œdematous.

Discussion

It will be noted that, as previously stated, the mortality of the total 29 cases is 2—i.e., 6·9 per cent. (or 7·4 per cent. of the 27 cases whose fate is known). Both of these patients who died appeared clinically to be cases of typical acute nephritis, and are therefore included. In regard to Case A, the clinical picture and pathological findings are, however, completely at variance, the clinical picture, with hæmaturia and a raised blood pressure, being typical of acute nephritis, while the macroscopic and microscopic appearances of the kidneys were of a type which one would associate with nephrosis. In the second fatal case (Case B), although an active inflammatory lesion was noted histologically, there was also diffuse interstitial fibrosis, suggesting a lesion of longer standing than the simple acute nephritis which the clinical picture had indicated; Addis's [10] observations concerning the long latent period between the acute and final stages of acute nephritis are of interest in this connexion. The possibility should be borne in mind of renal damage having occurred in this case subsequent to the patient's attack of scarlet fever at the age of two years, although no history of a previous attack of nephritis was obtained. It is evident, therefore, that in neither of the fatal cases was the microscopic appearance of the kidney typical of acute nephritis. (I am indebted to Dr. Dorothy Russell for the pathological reports of these two cases.)

Of the remaining 27 cases, 25 reported for follow-up purposes. The average duration of their in-patient treatment had been six and a half weeks, and when discharged they had all been considered fit for ordinary activities. It is noteworthy that all these children had remained in good general health, and only one (Case 10)—and possibly two others (Cases 14 and 24)—gave a history of urinary symptoms between the times of their discharge from hospital and the follow-up examination. At this re-examination the blood pressures of all the patients were regarded as lying within normal limits, and none showed signs of cardiac hypertrophy. There is no evidence that the degree of impairment of renal function and of elevation of blood pressure in the initial stage had necessarily any influence on the future progress of the patient. As will be seen from the case-histories and from the Table, 12 of these 25 cases are classed as "complete recovery"—i.e., 44·4 per cent. of the 27 cases whose fate is known. As a matter of fact this figure gives too pessimistic an impression, because, in order to differentiate between those cases showing no abnormality whatever on final re-examination and those in whom any

albuminuria was present—although accompanied by normal renal function tests, complete absence of blood, and not more than a few cells in the urinary deposit—a verdict of "complete recovery" is given for the former, and of "recovery" for the latter. (It should be called to mind in passing that blood—usually without any casts—may appear in the urine as a result of oxaluria, in the absence of actual nephritis.) No significance need be attached to the presence of albuminuria in the absence of symptoms of renal disease, provided that the centrifuged deposit shows not more than a few leucocytes and epithelial cells. Albumin may be passed in the urine for a considerable time without affecting the general health in any way or impairing renal function; this fact is exemplified in Guild's [5] paper. Six cases are classed as "recovery," the renal function tests being normal, and the urine showing no definite abnormality apart from small amounts of albumin—in most cases a trace only. If these cases be added to those listed as "complete recovery," the number of virtual recoveries totals 18—i.e., 66·6 per cent. In order to exclude orthostatic albuminuria, early-morning specimens were requested from the 14 children who were passing albumin at the time of the first follow-up re-examination. Ten specimens were sent, and of these six were found to be free from albumin, with a deposit showing nothing of significance. It is reasonable to assume that, if specimens from the other four children (at present classed as "recovery") had been obtained, a like proportion of these urines might have been albumin-free and quite normal.

Case.	Sore-throat or cervical adenitis.	Macroscopic blood in urine.	Blood pressure.	Œdema.	Renal function tests.	Result.
1	Yes.	Yes.	Normal.	No.	Normal.	Complete recovery.
2	Yes.	Yes.	Raised.	Slight.	„	„
3	No.	Yes.	„	„	Much impaired.	„
4	Yes.	Yes.	Normal.	No.	Normal.	„
5	Yes.	Yes.	„	No.	Much impaired.	„
6	Yes.	Yes.	—	No.	—	„
7	Yes.	Yes.	Raised.	No.	Much impaired.	Some renal damage.
8	No.	No.	—	No.	Normal.	Recovery.
9	Yes.	Yes.	—	No.	Some impairment.	„
10	No.	At times.	—	No.	„	„
11	Yes.	Yes.	Normal.	Slight.	Much impaired.	„
12	Yes.	No.	„	No.	Some impairment.	„
13	No.	Yes.	„	Slight.	„	Probably complete recovery.
14	No.	Yes.	„	„	—	Complete recovery.
15	Yes.	No.	Raised.	No.	Some impairment.	? Renal damage.
16	Yes.	Yes.	Normal.	No.	„	Complete recovery.
17	No.	Yes.	—	No.	„	„
18	No.	Yes.	Raised.	No.	„	Some renal damage.
19	Yes.	Yes.	—	No.	„	? Renal damage.
20	No.	No.	Raised.	Slight.	„	Complete recovery.
21	Yes.	Yes.	„	„	„	„
22	No.	No.	„	No.	„	Probably complete recovery.
23	No.	Yes.	—	Yes.	Much impaired.	„
24	No.	Yes.	—	Slight.	„	Recovery.
25	?	Yes.	Normal.	No.	Slight impairment.	Complete recovery.
Fatal Cases						
A.	—	No.	Raised.	Slight.	—	Death.
B.	—	Yes.	„	„	Much impaired.	„

Although 24-hourly specimens should be examined as a routine in hospital, one must emphasise here the importance of examining early-morning specimens of urine in assessing the significance of albuminuria, since orthostatic albuminuria is a common condition in otherwise normal children and adolescents, and may equally occur in those who have recovered from acute nephritis (Guild [5]). In this condition, of course, the only urinary abnormality is the presence of protein in urine passed when the patient is up and about (not in the first morning specimen), the deposit being essentially negative, and renal function being unimpaired. In testing such a urine, the addition of dilute acetic acid (5 to 10 per cent.) *without* heating produces a precipitate of protein which is not albumin, but is thought to be a globulin, and can be disregarded.

With reference to the remaining cases of the series, three (Cases 13, 22, and 23) are classed as "probably complete recovery." In these, when re-examined, the urine, blood-urea, and urea-concentration test were all normal, and only the phenol-sulphone-phthalein excretion was slightly low. If these be added to the foregoing two groups, the percentage showing a good end result is still further increased.

Two cases are recorded as "? renal damage." In one (Case 15) the blood-urea and urea concentration were normal at the first re-examination, but there was a slightly low phenol-sulphone-phthalein excretion, and very occasional red blood corpuscles in the urine, with a trace of albumin; eight months later an early-morning specimen of urine was normal. In the other case of this class (Case 19) the urine and blood-urea were normal at re-examination, but the phenol-sulphone-phthalein excretion and urea concentration were both slightly low.

Of the remaining two cases, one (Case 7) showed occasional red blood corpuscles and a heavy cloud of albumin at the second re-examination, although at the first the urine had contained nothing significant except a cloud of albumin, and the renal function tests had been normal. The other (Case 18) showed a low phenol-sulphone-phthalein excretion, but normal blood-urea and urea-concentration test, while the urine contained occasional red blood corpuscles at both times of re-examination, although no albumin was present in the specimen examined on the second occasion. These last two cases are considered to show evidence of the persistence of some renal damage. If they be taken in conjunction with the preceding two cases recorded as "? renal damage," this gives four cases—i.e., 14·8 per cent. of the total number of those whose fate is known—that can reasonably be regarded as showing any evidence of renal damage after a lapse of at least 18 months subsequent to the original attack; the general health of these children was, however, good. The mortality during the period studied is, as already stated, 6·9 per cent. Thus this series of cases, when analysed on what may be considered a conservative basis, supports the view that the prognosis of acute nephritis in childhood is a good one.

Summary and Conclusions

Twenty-seven consecutive cases of acute nephritis in children whose fate is known have been followed up and analysed. At the time of re-examination the patients had been discharged from hospital for periods varying from 18 months to three and a half years.

Of these 2 died (7·4 per cent.), while 18 (66·6 per cent.) are regarded as having recovered. Of the remaining 7 only 4 showed any evidence of persisting renal damage.

The importance of examining early-morning specimens of urine in all follow-up work of this nature is emphasised.

Albuminuria, in the absence of red blood corpuscles, casts, or many leucocytes in the urinary deposit, and in the absence of symptoms of renal disease, is regarded as of no serious significance.

The prognosis of acute nephritis in childhood is good, and does not appear to be necessarily related to the severity of the original attack.

I wish to acknowledge with thanks the assistance given by Dr. P. N. Panton and Dr. J. R. Marrack, in whose departments the pathological investigations were carried out, and the courtesy of Dr. A. G. Maitland-Jones in allowing me to report cases under his care.

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NEW PEPTONE TREATMENT IN ASTHMA AND OTHER ALLERGIES

BY A. G. AULD, M.D. GLASG., M.R.C.P. LOND., D.P.H. OXF.

FORMERLY LECTURER ON PATHOLOGY AND CLINICAL MEDICINE, PRINCE OF WALES'S GENERAL HOSPITAL; VISITING PHYSICIAN TO WESTMINSTER AND TO ST. MARYLEBONE GENERAL DISPENSARIES

IN a recent paper in this journal[1] I stated that Luithlen had obtained favourable results with vegetable peptones. On looking over my cases, I found that a number of years ago I gave alfalfa or wheat peptone to many. I received last year a number of "propeptans" from Vienna, and some of them were examined for me at the Lister Institute. The vegetable propeptans were composed largely of starch and dextrin. Potato, for instance, gave 0·85 per cent. total nitrogen, equal to about 5 per cent. of the protein products, the soluble portion giving a positive ninhydrin reaction. Wheat gave about 5 per cent. protein products, and contained albumoses, but no peptones. In the beef propeptan some proteins were found, in addition to proteoses and peptones. These propeptans are given in tablet form to patients sensitive to the proteins, but I have not used them so.

It was also mentioned that Witte, in collaboration with a German university, had recently manufactured a new peptone—"peptone special 30"—which was devoid of the toxic effects of his ordinary peptone, and was destined for injection. Over a year's trial has confirmed me in the belief that it is a valuable product, and its use in a 5 per cent. solution intramuscularly, together with a 5 per cent. solution of the vegetable propeptan, is a valuable gain in cases of allergy. Perhaps the wheat propeptan is mainly advisable, as, according to Walzer and Ramsdell,[2] the wheat antigen simulates egg-white in its desensitisation of the uterine horn.

A good many failures in peptone treatment may be due to (1) wrong dosage, (2) neglect to give a second or even a third course, and (3) the non-production of a mild pyrogenic reaction. By the latter is not meant "protein shock," as it is usually and erroneously called. It can be obtained with serum peptone or a small dose of typhoid vaccine intravenously, after which the continuation of the peptone course is often signalised by a great turn of the tide. Sometimes much the same result is found after fevers. How can it be stated that intravenous injection of non-reactive doses of peptone is dangerous when injections of substances giving a full pyrogenic reaction is quite safe?

The making of serum peptone I have previously described.[3] Pickering[4] states that "it seems established that peptone unites with plasma, and forms a relatively stable complex." This stability may probably be increased when the peptone is injected after union with serum in the incubator. As regards homologous serum, Rackemann,[5] quoting Weil, remarks that "homologous serum is not destroyed like heterologous serum, and the antibodies continue to circulate in the recipient animal." I have recently been using the serum of patients who, after a long course of peptone, have recovered apparently good health: convalescent serum we might call it. This serum may be used plain, then mixed with peptone on the new cases. Very good results have been obtained. The first patient whose serum I used in this manner was sent to me by Dr. Snell, of Nottingham.

He was a young man, aged 24, and was in perfect health, except for the asthma. His brothers were asthmatic. He gave positive reactions to horse dander and to dog hair, but even when in no proximity to these suffered from asthma since the age of 6. Sometimes he had to remain in bed a few days. He had peptone for two months, and 5 c.cm. of his own blood subcutaneously, three times, and 10 c.cm. twice. Also he had ultra-violet light, which may act as a tonic, but has very little effect on the asthma. He got better and stayed away for about three months, when he was again treated. He again got better, and stayed away for a few months, and on his return the asthma was not nearly so severe. He then got Witte's new peptone (0·3 to 3 c.cm.) intramuscularly, and the same dosage of wheat peptone. He got quite well, and has since remained so. About three weeks after his recovery I abstracted a quantity of his blood into an Erlenmeyer flask, and obtained 2 oz. of serum.

With this serum I began the second course of treatment of a patient, a male aged 55, who was sent to me some time previously by Dr. Philip Barlow, of Kensington.

It was a very severe case. I treated him then for two to three months, and though benefited at the time his asthma returned. I asked him to come back, and tried him with the convalescent serum, intravenously, for three weeks (5 to 10 c.cm.); then this serum was incubated with the new peptone, and injected intramuscularly for several weeks together with wheat peptone. The result was that he was practically cured of a prolonged and severe asthma. Since then other cases have been treated in the same manner with highly satisfactory results.

HAY-FEVER

The various pollen methods of treating hay-fever and hay-asthma are well known, but recently Bishop's acid treatment, with a ketogenic diet, have attracted attention. That the clinical estimate of acid treatment seems to be well founded is supported by the experimental work of Thornton[6] in Prof. R. J. S. McDowall's laboratory, who found that "within

physiological ranges of reaction the bronchial muscle is constricted by dilute alkali, and relaxed by dilute acid." I have also found that purely asthma cases do better on acids than on alkalis. Those sensitive to pollens may be sensitive to foods, dandruff from animals, orris root, &c. Peptone desensitises them to all, but it must be remembered that pollen contains, in addition to proteins, also proteoses and peptones, which no doubt take a share in the result. Warren Vaughan,[7] who uses peptone in all allergies, states that he "has relieved tree-pollen sensitive patients throughout their short season with peptone injections. In short season cases it is sometimes preferable to try this. In long season cases we may try peptone for non-specific effect." Schiff [8] states that he has got "astonishing results" with peptone in hay-fever. Loeb,[9] of Berlin, says that "in numerous cases we have seen as good results with peptone as with specific treatment." Vallery-Radot and Giroud [10] also recommend it. I have used it many years, both alone and with pollen, but it is not necessary to begin it as early as pollen. It should be continued during the active course of the disease.

MIGRAINE

A good few years ago a case of migraine, greatly improved by peptone injections, was described by me.[11] Some years afterwards, Miller and Raulston [12] described a number of cases, many of which were greatly benefited by the same method. Here may be described shortly a case of a very desperate character, which up to the present at least has been practically cured, the last number of injections having been made with Witte's new peptone.

The patient, a female aged 53, had suffered since puberty from exceptionally severe attacks of migraine. She was slender and otherwise perfectly healthy. She had several children. Sickness and vomiting comes on about once a week with severe headache. The sickness lasts about 12 hours, and the headache 48 hours, but sometimes four days. Heart normal. I saw her first in September, 1930, and she was treated with peptone and serum peptone intramuscularly until Dec. 1st. She remained free until Dec. 31st, when she had an attack of headache but no sickness. Powdered glucose twice daily had done her stomach good. No treatment was given then, and she returned on Feb. 27th, 1931, saying she had had a bad attack of headache. She then had Witte's new peptone up to 3 c.cm. intramuscularly until May, twice weekly, when she got quite well, and has remained so since, except for an occasional slight headache. Is it not better to try this than to say that nothing can be done, as she informed me the doctors had told her?

The foregoing remarks show that these chronic diseases are amenable to treatment which is carefully administered; indeed more so than most other chronic affections.

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EAST SUFFOLK AND IPSWICH HOSPITAL.—The report for 1931 records the admission of 5045 in-patients, with an average of 258·65 beds in daily occupation, an unusual figure, seeing that the normal number of equipped beds is 264. The average stay was 18·71 days. The ordinary income was £50,747, a decrease of over £3000; there was consequently a deficit on the year's working of a little more than £1000. The average weekly cost of each in-patient was £3.

LATERAL THORACIC JERK

A SIGN OF ANEURYSM OF THE DESCENDING THORACIC AORTA*

BY GEOFFREY BOURNE, M.D., F.R.C.P. LOND.
ASSISTANT PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL

THE physical sign here recorded in two cases of aneurysm of the descending aorta was first seen by me in the wards of Dr. R. W. Scott, of Cleveland, who drew my attention to it verbally. Its memory remained buried until the cases here described stimulated recollection, and enabled a diagnosis of aneurysm of the lower descending thoracic aorta to be made in both patients with confidence on clinical evidence alone. Search in the literature, both ancient and modern, has failed to unearth a reference to it. Dr. Scott, in reply to a letter on the point, states that he has since seen two similar cases.

CASE REPORTS

CASE 1.—A man, aged 67, was first seen in the out-patient department of St. Bartholomew's Hospital in April, 1932, complaining of difficulty in swallowing.

History of the present condition.—In April, 1927, he first attended the surgical out-patient department complaining of pain in the back.

Osteo-arthritis of the lower dorsal spine was diagnosed, and he received radiant heat treatment. The pain was improved, but not removed. Ten weeks ago he began to suffer from a feeling of slight nausea during his evening meal. He would then vomit and obtain relief, subsequently returning to finish the meal. There was no persistent nausea and no true dyspepsia. In addition, he felt that the food did not readily enter the stomach. These symptoms have persisted since, but have not been present every day. The appetite has always been good. He has not lost weight during the last few months.

Physical signs.—On examination he was found to be a rather old-looking man of 67, thin, and of small build. There was no irregularity of pupils, and no tracheal tug.

In the recumbent position the whole chest was seen to pulsate on systole, and on careful inspection this movement was seen to comprise a complete slight lateral displacement of the whole thorax to the left. The movement was synchronous with ventricular systole, and was especially convincingly seen at the right nipple and on the right axillary margin. These points were individually observed to move laterally to the left on systole. When he was lying on his face the whole thorax was seen to move to the right.

The only other physical signs of note were as follows:—

The apex of the heart was palpable, 5¼ inches to the left in the sixth space. The impulse was diffuse and heaving, and could be felt in the fourth, fifth, and sixth spaces. There was an aortic diastolic murmur, audible most clearly in the fourth space just to the left of the sternum. The blood pressure was 130/70.

The lateral systolic movement of the thorax immediately suggested to me the presence of an aortic aneurysm low down in the descending aorta, pressing upon the œsophagus. Other suggestive evidence was the aortic incompetence, together with the history of pain in the back and of dysphagia. The Wassermann reaction was strongly positive, as was the sigma reaction (more than 42 units). The radiogram, taken by Dr. G. T. Loughbrough, showed the presence of an aortic aneurysm in the descending aorta just above the diaphragm, pressing upon the œsophagus and upon the spine. It was situated between the internal protuberance of the spinal column and the left ventricle. The general relationship of the aneurysm to the heart, œsophagus,

* From the Cardiographic Department of St. Bartholomew's Hospital, London.

FIGS. 1 2 3

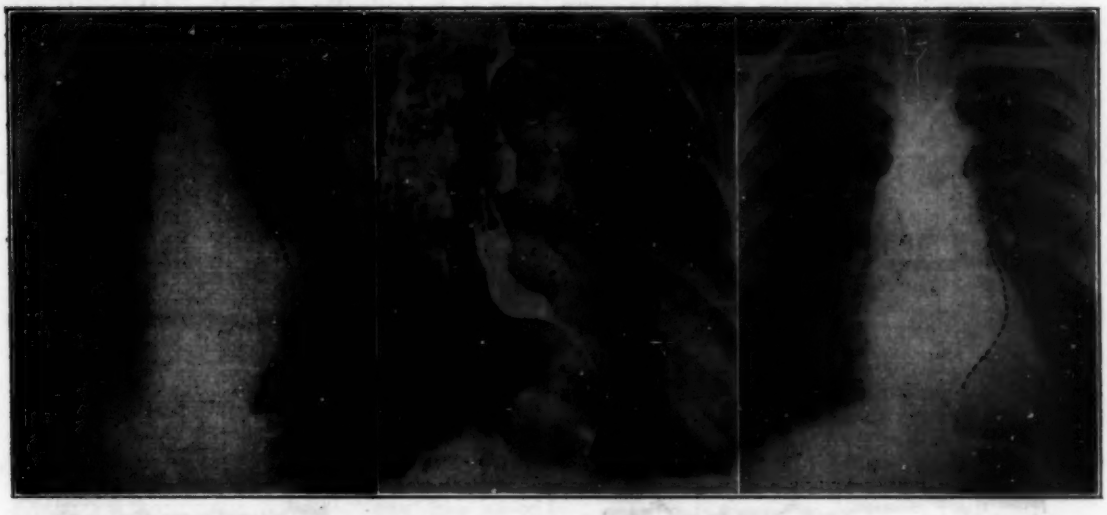
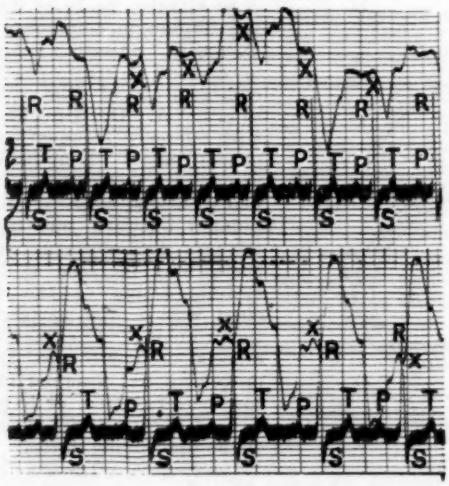


FIG. 1 (Case 1).—The aneurysm (outlined by dotted line) is seen behind the heart.
FIG. 2 (Case 1).—The anterior displacement of the œsophagus by the aneurysm is seen. Some vertebral erosion is visible.
FIG. 3 (Case 2).—Aneurysm visible behind the heart.

and spine is shown in Fig. 1; the deflection of the œsophagus, which contains some barium paste, and the spinal erosion are seen in Fig. 2. The diagnosis made clinically was thus accurately confirmed, and the importance of lateral pulsation of the whole chest as a physical sign of great clinical value adequately proved.

CASE 2.—A man, aged 36, was admitted under my care complaining of pain in the back.

FIG. 4

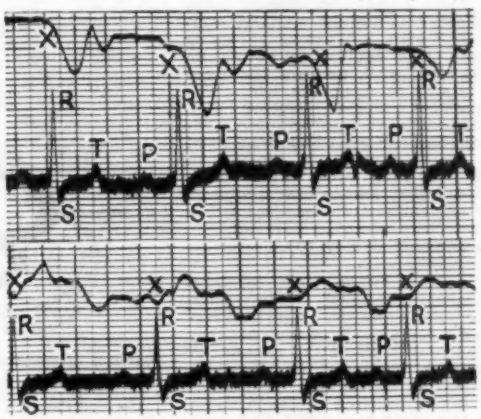


History of the present condition.—In January, 1931, he noticed a sudden "click in the back, as though something had snapped," with the onset of continued sharp pain behind the lower right scapula. The pain slowly disappeared until September, 1931. Suddenly, during violent exertion the pain returned. It caused him to sweat, and kept him awake at night. The pain again gradually disappeared. He returned to work in November, but this revived the pain. For the last six months he has been unable to do heavy work, and the pain has been present nearly continually, but with variations in intensity. It has been of a girdle distribution, but right-sided only.

Physical signs.—He was a rather thin man. The left pupil was larger than the right. Tracheal tug was present.

On inspection the whole thorax was seen to move slightly to the left on systole. On analysing the movement it was seen that the third, fourth, and fifth ribs and spaces were the site of a heaving systolic impulse, and that the right side of the chest in front and in the axilla were drawn in to the left.

FIG. 5



The apex-beat was 3¼ inches to the left of the mid-line, in the fifth space, the impulse being heaving in character. A systolic murmur was audible at the aortic base and at the apex. The aortic second sound was loud. A soft aortic diastolic murmur was audible in the mid-line at the level of the third rib. The blood pressure was 114/76. The abdomen was normal. The urine contained no albumin.

The radiogram (Fig. 3) confirms the clinical findings, showing the presence of a nearly spherical aneurysm

of the descending aorta. Its diameter was about 9 cm. The bodies of the ninth and tenth vertebræ showed marked erosion in the lateral view, which is not shown. The Wassermann reaction was strongly positive.

This second case differed from the first chiefly in that the thoracic movement was less in extent, that

FIG. 6

there was no hypertrophy of the heart, and no evidence of aortic regurgitation; for the position of the apex-beat, the clear aortic second sound, and the normal blood pressure all negatived the possibility of a marked valvular aortic lesion. The diastolic murmur present possibly arose in the aneurysm, and was conducted through the heart to the chest wall.

DESCRIPTION OF GRAPHIC RECORDS

In both cases simultaneous electrocardiographic and thoracographic tracings were made to show the relation between ventricular systole and the movement of the two sides of the chest wall.

The lateral movement was recorded as follows. A large tambour, with a central thrusting knob, was applied to points on the chest wall, first on the right side and then on the left. The pressure changes resulting were transmitted to a polygraph-recording tambour to which was fixed a short length of fine-drawn capillary glass tube. This was so placed that its shadow would lie beside that of the string of the electrocardiograph, allowing the movements of both to be recorded simultaneously.

Pressure upon the tambour caused a movement of the recording point upwards, or in the direction of the R wave of the electrocardiograph; release of pressure against the tambour caused a movement downwards or in the direction of the S wave. If the chest movement had been expansile the pointer would have recorded it in an upward direction, wherever the tambour were applied. Since the movement was a jerk of the whole chest to the left the recording pointer produced a downward wave when the tambour was placed against the right side, and an upward one when it was placed against the left. This movement is seen in all the tracings shown.

In addition, there is an elastic recoil which results in a diphasic type of curve. This is more marked near the heart's apex, and least evident on the right side of the chest.

The points where the chest movement was recorded in Case 1 were the costal margin in the anterior axillary line (Fig. 4), the level of the nipple in the anterior axillary line, and a point 2 inches below the apex of the axilla (Fig. 5). In Case 2 the points were the anterior axillary line in the seventh space (Fig. 6), and from the mid-axillary line at the level of the nipple (Fig. 7). In both cases the upper pair of curves in each tracing refers to the right and the lower pair to the left side of the chest. The results afford graphic proof that the movement of the thorax to the left is real and not only apparent. The respiratory movement is superimposed also in the upper tracing of Fig. 4.

FIG. 7

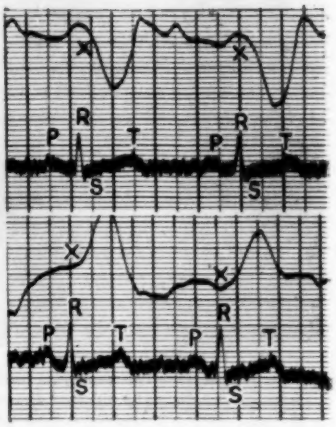


FIG. 8

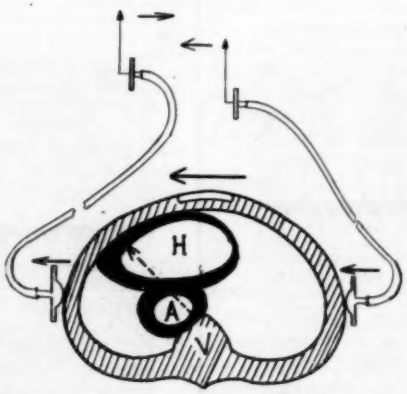


Diagram of transverse section of chest to illustrate position of aneurysm and transmission of impulse to recording instrument. H = heart; A = aneurysm; V = vertebral column.

DISCUSSION

A search of textbooks and published records has failed to bring to light any reference to this physical sign, but the following statements have some interest in reference to it, either by proving that any definite sign in aneurysm of the descending aorta is rare, or by indicating that the sign has rarely been accurately observed, and never recorded. A. T. Hewlett and W. R. P. Clark[1] state: "The physical signs of aneurysm of the descending aorta are of such indefinite nature that only exceptionally can one make a diagnosis from signs alone previous to erosion of the bony thorax." G. A. Gibson[2] says: "Aneurysm of the descending aorta, especially if so situated as to be close to the diaphragm, commonly gives expansile pulsatory appearances, and it may even cause enlargement of the affected side." A. D. Hirschfelder,[3] with reference to aneurysms in general, says: "Long before an aneurysm perforates, and in many cases when it is not pointed outward but upward towards the episternal notch, there may be seen a diffuse systolic lifting of the whole chest wall or the parts above the tumour." He makes no especial reference to lateral movement as observed in the case here reported, or to pulsation of the chest in aneurysm of the descending aorta.

Explanation.—The mechanism by which the sign is produced is very simple, and the lateral movement is readily recognised by the eye. The reason why it has apparently escaped description hitherto must be that aneurysms are not frequently localised to the necessary area in the mediastinum.

[1] Amer. Jour. Med. Sci., 1909, cxxxvii., 805.
[2] Diseases of the Heart and Aorta, Edinburgh and London, 1898, p. 851.
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All that is required is that the tumour should be placed low in the posterior mediastinum at the level of the left ventricle; secondly, that it should be wedged between this chamber in front and the spinal protuberance behind, as shown in Fig. 8. Should these organs lie in such relationship one with another a lateral systolic movement of the thorax to the left will inevitably result. The contraction of the ventricle presses this chamber's apex against the chest wall on the one hand and against the aneurysm on the other. The aneurysm is almost simultaneously rendered turgid and hard and presses against the spine. This latter structure, especially if the patient is recumbent, is a fixed point from which an oblique line of force is reflected back through the hard aneurysm and contracting left ventricle to the præcordium, which is pushed to the left, pulling the rest of the anterior part of the thorax with it.

The sign will obviously not be seen if the aneurysm is at a higher level than the ventricles, and if it is pointing laterally on one side or other of the heart. Should some other solid tumour be present in this specific position the sign would no doubt be equally well produced, but such tumours occur here even less frequently than aneurysms.

Conclusions.—A systolic movement of the thorax as a whole to the left is described and recorded graphically. This thoracic jerk is shown to be a valuable sign of aneurysm of the lower descending thoracic aorta. The mechanism of the sign is explained.

HIGH SPINAL ANÆSTHESIA

By E. Falkner Hill, M.B. Manch.

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In this journal on Jan. 9th last there appeared an article on Low Spinal Anæsthesia, by Dr. J. K. Hasler, pointing out the many advantages of this method. Chief amongst them are reliability (100 per cent.) and the absence of the discomforts of general anæsthesia. The great feature of spinal analgesia, apart from the absence of toxicity, is the complete muscular paralysis it produces. This outstanding characteristic is more particularly useful in operations on the upper abdomen. The lack of control of the height and duration of the analgesia induced by intrathecal injections have been two of the main factors in preventing the universal adoption of this method for this region. "Too high" means a failure of respiration on the part of the patient; "too low" means a failure of technique on the part of the anæsthetist, a waste of time, and the triumph of the "always was, is now and ever shall be" attitude.

Spinal analgesia gives a muscular relaxation so complete as to facilitate and therefore to shorten every abdominal section. This is a factor tending to decrease the mortality of all difficult laparotomies. The technique here described has been justified by the best of all justifications—success. Out of the 100 cases in this series, 79 have required a high analgesia and 21 a low one. In no case (if the operation demanded) did the analgesia last less than an hour, but in two cases—one at the end of an hour and the other at the end of 95 minutes—it was necessary to put the patient deeply under chloroform and ether. The term "reliable" as applied to this method seems to be justified.

The list of cases is as follows:—

Gastrectomies	2	Splenectomy	1
Gastro-enterostomies	11	Ruptured mesentery	1
Gall-bladders	16	Fibroid	1
Laparotomies	19	Kidney cases	6
Acute appendices	7	Bladder and rectal cases	14
Perforated duodenal ulcers	3	Herniæ	6
Gastro-colic fistulæ	3	Internal derangement of the knee-joint	1
Lateral anastomoses	4		
Intestinal obstructions	5		

THE TECHNIQUE

The solution derives from Pitkin's spinocain. For reasons given in a previous paper,[1] the strychnine was omitted from Pitkin's formula and light duracain was the result. Between 500 and 600 cases were done with this solution. The results were very good below the umbilicus, but not more than 84 per cent. of the cases above the umbilicus were successful. Those of the residents at the Manchester Royal Infirmary who were called upon to give intrathecal injections found they achieved more reliable results with stovaine. I therefore asked Messrs. May and Baker to make up a solution with the following formula:—

Planocain (novocain) 0·1 g. per c.cm.
Gliadin .. .. 0·00325 g. per c.cm.
Glycerin .. .. 0·12 g. per c.cm. in 15 per cent. alcohol.

The specific gravity is 1·028—i.e., exactly the same as the ordinary stovaine glucose. It is this solution that has been used throughout.

It is necessary to have a flat table with a nice adjustment so that the body of the patient, who is lying on his side, can be sloped slightly, not more than 5° (shoulders down), whilst at the same time the head is supported on a pillow or head rest. The interval between the second and third lumbar vertebræ is usually the most convenient, and through this the theca is tapped and sufficient cerebro-spinal fluid is withdrawn to make the contents of the syringe up to 4 c.cm., which is then injected gently into the theca. As a rule the patient is analgesic to the nipple line in three to five minutes, and the operation may then begin.

RESULTS

Time.—One of the main drawbacks of this method has been the short and uncertain duration of the analgesia. From the anæsthetist's point of view, a difficulty sometimes encountered is the long and uncertain duration of the operation. Twice in this series "appendices" turned out to be "gall-bladders," and a colostomy ended in a double lateral anastomosis. In each of these cases the analgesia was both high enough and long enough. Case 95 turned out much more difficult than expected, and one hour's spinal analgesia had to be followed by full surgical anæsthesia with ether and chloroform. Such cases are bound to arise from time to time. In every case in this series the analgesia lasted for the duration of the operation or at least one hour. The longest times were as follows:—

Double pyosalpinx	99 minutes.
Gastro-colic fistula	104 "
Gastrectomy	105 "
Jejunal ulcer	115 "
Resection of growth	126 "

As most operations can be finished in an hour and a half the time difficulty has been reduced to an almost negligible quantity, a quantity, moreover, which I am told can be quite satisfactorily overcome with percaine.

Controllability.—Another drawback of spinal analgesia has been the lack of control of the height to which it extended. With the technique advised here it seems impossible that the analgesia should ever extend higher than the second or first dorsal

segment, and at that height it is in itself safe. I have seen no case in this series in which there was any evidence of respiratory embarrassment or distress. On the other hand, there is no fear of getting the zone of analgesia too low. Unless the injection be made in the sitting-up position it is difficult to keep it below the level of the ensiform.

Blood pressure.—Macdonald and I have shown that it is impossible to lower the blood pressure in cats beyond 70–80 mm. Hg with novocain injected intrathecally, provided the solution does not reach the phrenics. The clinical findings go a long way to confirm this observation as true for man also. Owing to the vastly greater importance of the vasoconstrictor mechanism in man, it is likely that paralysis would bring the blood pressure to a slightly lower level in man than in the cat, to about 60 mm. Hg. It was only lower than this on eight occasions, and the cause in every case was obvious. Shock following severe manipulation of the abdominal contents is the commonest ; a feeble condition of the patient, as in Case 61, is another ; a toxic condition, as in Case 29, is a third ; severe hæmorrhage and coronary thrombosis are not represented in this series but may occur. If none of these causes is in operation and the blood pressure is falling it is likely to be due to the drug used beginning to weaken the phrenic nerves, and artificial respiration should be instituted without delay.

These experimental and clinical facts definitely contradict Pitkin's statement [2] at the British Medical Association meeting in 1929: "If the anæsthetic is confined to the lumbar spine there is no change in the blood pressure ; if it reaches the first thoracic it (the blood pressure) becomes nil." At the same meeting I showed a case in which the anæsthesia at the termination of a laparotomy, in which every viscus had been palpated and the appendix removed, was on a level with the clavicles, and yet the blood pressure had been higher throughout the whole operation than before. Many cases in this series illustrate the same point—i.e., the concomitance of high anæsthesia and high blood pressure. In Case 57 the initial, lowest and terminal blood pressures were 140, 124, and 160 respectively ; the anæsthesia meanwhile extended to the second dorsal segment. The operation was a laparotomy, but the lesion proved to be an old hæmorrhage into the Fallopian tube. In Case 92 the anæsthesia rose as high as the first dorsal segment, yet the blood pressure readings were 105, 120, 105. The operation was short and gentle : the draining of a gall-bladder that had become gangrenous as the result of internal pressure from obstruction due to a malignant growth of the pancreas.

These cases show that a high anæsthesia does not necessarily cause a low blood pressure. If there be a big fall, it does not occur as a rule until after the peritoneum has been opened and the exploring hand of the surgeon introduced into the peritoneal cavity. The explanation is to be found in the fact that the solution is heavier than the cerebro-spinal fluid, and tends to affect the posterior roots rather than the anterior from which the vasoconstrictor fibres spring ; moreover, the action of novocain is more gradual in operation than that of stovaine. It reminds me of the action of a well-designed brake, which begins to grip with the slightest pressure, increasing its hold with every increment of power, until the most inquisitive pain is shut out. Stovaine, on the other hand, has an all-or-nothing action, a kick in the stomach, a hit below the belt—and after all, this is perhaps the region to which it is most suited.

If for any reason the blood pressure rises after the anæsthetic has been given and remains high, the anæsthesia will not last as long as usual. In Case 82 the initial reading was 120 ; the operation began 15 minutes later, and the next reading showed 180, as did the subsequent four readings at ten-minute intervals. At the end of an hour, when the operation was finished, there were definite signs that the anæsthesia was passing off ; the patient could move both legs and said she could feel the needle stitching the abdominal wall, but its passage was not painful. She had had 2·6 c.cm. of the solution, a dose which I should expect to last one and a half hours. It lasted just an hour. Sebrechts has noted a similar phenomenon after the injection of adrenaline ; he says, "Car elle a l'inconvénient réel de raccourcir la durée de la rachianesthésie." [3]

ADVANTAGES

1. *Over novocain.*—According to Forque and Basset,[4] who have had 20 years' experience of novocain, this drug diffuses towards the medulla, and there, even in the attenuated strength with which it reaches the vomiting centre, it excites this centre, with the usual unpleasant consequences to the patient and inconvenience to the surgeon. There is no such diffusion with heavy duracain, and I have not seen a single patient vomit or even feel sick until the abdominal contents have been interfered with. This holding together of the solution is due to the gliadin. Some writers have argued that the vomiting due to a spinal anæsthetic is produced, not by its diffusion in the cerebro-spinal fluid, but by its absorption into the blood. It is difficult to accept this, on account of the fact that to paralyse the respiratory centre ten times as much novocain given intravenously is needed as the maximum dose that I ever give intrathecally. If this is the order of magnitude of the ratio of intravenous to intrathecal routes for the effect of novocain on the respiratory centre, one may safely assume, in the absence of proof to the contrary, that the same ratio applies to the vomiting centre. Pitkin claims that gliadin delays absorption as it delays diffusion. Prima facie one would suppose this to be so, but I am not aware of any proof. The fact that a mixture of novocain and gliadin lasts longer than novocain alone may be explained on the ground that diffusion is markedly slowed and, ipso facto absorption must necessarily be delayed also.

2. *Over stovaine.*—The action of stovaine is more sudden. It frequently causes pallor and a rapid fall of blood pressure. In therapeutic doses it gives too short a period of analgesia for most upper abdominal sections. According to Jean Camus,[5] it is more toxic to the nerve centres, especially the respiratory centre. Its elimination is slower.

3. *Over percaine.*—I have no personal experience of percaine. A number of cases have been anæsthetised with this drug at the Manchester Royal Infirmary and the opinion of the house surgeon and sisters in charge is unanimous in saying that there is more headache and more backache than with heavy duracain. It takes longer to act ; an interval of 10–15 minutes between the injection and the operation is usually allowed. This, of course, is no great matter, seeing that the anæsthesia lasts so long. The long duration is, however, a doubtful blessing if it means that the patient has to lie on his back all the time ; not improbably chest complications are thereby rendered more frequent. The toxicity of percaine is not a matter that can be entirely set on one side by the extreme dilution in which it is used ; minute doses of quinine are exceedingly toxic to some people.

But doubtless percaine has its field of usefulness, particularly in operations lasting or likely to last over two hours.

Heavy duracain avoids both the Scylla of "too short" and the Charybdis of "too long." Its technique is easy, its requirements are minimal: a flat table with a nice adjustment. Its reliability is in the neighbourhood of 100 per cent. and its controllability is all that is needed. It fails only in one particular: we have so far found no means whereby we can skip the third, fourth, and fifth cervical roots and attack the vagus. At present we try to diminish the action of the vagus with atropine, but exactly what effect, if any, this has on the afferent branches I am unable to say.

In one case I was asked to give an anæsthetic to a patient on one of those semi-modern tables of which the top consists of four or five different pieces, no two of which can be put on the same level. In these circumstances it is impossible to be sure that the body of the patient is at the right angle. Faced with a situation of this sort, one is much in the same case as Gilbert's billiard-marker whose "lot is extremely hard, for though the spot is not always barred it is sometimes difficult to find, especially in gloves; thus the 'fitless fingerstalls,' the cloth untrue," "the twisted cue" all find their parallel in the anæsthetist's armamentarium. The case itself was a complete failure, the analgesia rising no higher than the umbilicus.

A flat table and a delicate adjustment thereof are quite essential if good results are to be obtained.

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CLINICAL AND LABORATORY NOTES

NASAL SINUSITIS AND THE EYE

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FAILING sight is a symptom the serious nature of which is immediately obvious, particularly to the patient. The purpose of this communication is to record the findings and results in some cases where, on this account, the nasal sinuses were examined, and to emphasise the great importance of that investigation. The first five patients form a consecutive series, all seen within the six months September, 1931, to February, 1932; the sixth has been added to illustrate the possibility, easily overlooked, of chronic sinusitis occurring in a quite young patient. They were all referred to me by Mr. E. R. Chambers, to whom I am indebted for notes of the eye conditions, the nature of which indicated some chronic toxic process, despite in every case a full but negative investigation of teeth, fauces, lungs, alimentary and genito-urinary systems, and the possibility of syphilis. One must of course guard against claiming that *post* is *propter*; but when in each of a series of cases the turning-point is the demonstration and treatment of an infected nasal sinus, the explanation cannot be mere coincidence.

The case reports are self-explanatory. Three points, however, deserve particular mention. The first is that there is often no manifest local evidence of infection, such as nasal obstruction, discharge, or headache; these are the signs of an adequate local defensive reaction. One constantly sees patients with noses stuffed with polypi or freely discharging pus, yet robust, ruddy, and cheerful, their troubles being only local. On the other hand, where the local reaction is so slight as to attract no attention toxic absorption appears specially liable to occur, producing characteristic changes—ocular, nervous, or arthritic as the case may be. In three of the five cases of sinusitis, rhinoscopy was negative.

The second point relates to the difficulty of excluding sinusitis on X ray evidence: of the five cases reported, the report on the skiagrams was negative in two, although sinusitis was discovered; and in two others the skiagraphic evidence was not borne out by the operative findings.

Thirdly, the eye conditions under discussion appear to yield rapidly after treatment of the sinus disease, although previously intractable. One cannot help thinking that the two patients whose sight had been permanently damaged might have escaped; since it seems possible—and to those who appreciate the very protracted course of untreated sinusitis, probable—that the same infection had been responsible throughout. The fifth case in the series, although not one of sinusitis, illustrates the importance of not overlooking sources of infection which are apparently insignificant. I am indebted to Dr. A. D. Fraser for the pathological reports.

CASE REPORTS

CASE 1. *Keratitis in association with latent maxillary sinusitis.*—A female, aged 52, complained of recent loss of vision; she had long had impairment due to old keratitis which had left corneal opacities. The keratitis had recently recurred, and for a month or so the sight had become so bad that she could not get about. There was a history of nasal discharge years before, when the "ulcers of the eyes" had begun. All examination for sepsis was quite negative, the Wassermann reaction was negative, and there was no trace of any abnormality in the nose or throat. The skiagraphic report was "Sinuses clear; the skull is abnormally thick."

I thought that there was some opacity of the left antrum. The sinuses were accordingly washed out; the washings from the sphenoidal sinuses were quite clear and sterile, but those from both antra contained traces of mucopus which on culture grew streptococci. All the sinuses were disinfected with 1/10,000 biniodide solution. A week later the vision in the right eye (the better) had returned to its former degree, and she went home very contented; she was instructed to return at once for further operation (pernasal antrostomy) if there was any hint of recurrence.

CASE 2. *Retinal degeneration: polysinusitis.*—A man, aged 54, had suffered from "catarrh" for many years, but came up because during the last six months his sight had been gradually failing. Investigation showed evidence of retinal degeneration; all other search for infection was negative, but there was a free discharge of mucus in the nose, and an X ray showed opacity of the right antrum. The sinuses were accordingly explored; the right antrum contained "some mucus," the left "much thick pus"; the right ethmoid was much softened and full of pus. The sphenoidal sinuses were quite clean and the washings sterile. The washings from both antra were reported to contain "mucopus, culture=pneumococci" and from the right ethmoid "pus, culture=streptococci." All these cells were opened. Two days later he said that the sight was quite definitely improved. He went home with an autogenous vaccine and a month later the sight was normal, as it remains.

CASE 3. *Recurrent keratitis: latent polysinusitis.*—A man, aged 38, had been blind in right eye since the age of 8, following corneal ulceration. He was brought to me in October, 1931, because the left eye had become "misty" for three months, and the right had been inflamed for three weeks. He had bilateral keratitis; the Wassermann was negative. There was no intranasal evidence of sinusitis, but the X ray showed a doubtful loss of transradiance in the left antrum. In view of the serious outlook if we could not treat the cause of the keratitis, and since there was no

other evidence of an infective focus, it was resolved to examine the sinuses. The right antrum and sphenoidal sinus were full of thick mucopus, the left sinuses clean and sterile. The infected sinuses were opened. Three weeks later the condition of the eyes was considerably improved, and the vision of the left was noticeably less misty; subsequent recovery was complete.

CASE 4. *Recurrent keratitis: chronic tonsillitis, polysinusitis.*—A girl, aged 17, was referred on account of phlyctenular keratitis of unknown origin, first appearing in childhood and subsequently (July, 1931) recurrent for several weeks. A tuberculous source had been suspected, but no confirmation had been obtained, and the prognosis for vision was considered to be serious. The general health was very good; she did not suffer from colds or catarrh, but had had an attack of tonsillitis since the onset of the recurrence. The tonsils had been "removed" in childhood, but were now "deep and dirty"; adenoids had also been removed but had "grown again," and there was granular pharyngitis. The nasal septum was deviated to the left, with drying of the right side and free mucoid discharge from the narrow left side; she had formerly noticed a mattery smell. The skiagraphic report was "no evidence of disease," though I considered the left ethmoid and both antra suspicious.

At operation I removed tonsils and adenoids, and resected the septum. The right antrum and both sphenoidal sinuses were full of streptococcal pus; the left antrum was clean and sterile. The infected cells were opened. Four months later I received the gratifying report that she was completely cured and back at work.

CASE 5. *Keratitis: chronic tonsillitis.*—A girl, aged 10, was brought up suffering from interstitial keratitis of the right eye for six weeks; all attempts to discover an infective focus had been negative, the Wassermann reaction was negative, and antiluetic treatment had failed. An X ray reported: "Probable right antral infection." She had a small pad of adenoids; the tonsils had been "removed" previously, but there were deep and dirty remains of the left concealed by the faucial pillar. The nose appeared absolutely normal. My report was: "The tonsil remains seem as likely to be the cause of keratitis as the sinuses" (I agreed that the X ray of the antrum showed a somewhat woolly outline, but no opacity). The nasal sinuses proved to be quite clean and the washes were sterile; the tonsil remains were removed, and gave a copious growth of streptococci. A month later she was discharged, the eye healed, without obvious damage.

CASE 6. *Recurrent keratitis in a young child: latent antral disease.*—A girl, aged 2, was brought to me in 1930, suffering from keratitis for which no cause could be found; there had been three previous attacks. The tonsils were small and healthy, there were no adenoids, and the nose appeared perfectly normal. The antra were explored, found to be full of thick mucopus, and opened. The keratitis cleared up within a few days, and there has been no subsequent attack.

These cases, as I have said, show that it is hard to exclude sinusitis either by rhinoscopic or skiagraphic examination; and that where the infection is treated the prognosis for the ocular condition is good.

MICRO-ORGANISMS IN CATARRHAL JAUNDICE

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As much interest has recently been directed to the possible nature and causation of epidemic catarrhal jaundice the following note may be of interest.

A healthy schoolboy, aged 16, developed jaundice in October, 1927, about a month after his return to boarding-school from his holiday spent in the south of Spain. He had a slight temperature and well-marked but not intense jaundice without any other noticeable symptoms. There was no enlargement of the liver or spleen, no hæmorrhages, no petechiæ, in fact nothing beyond the discoloration of the skin and mucous membranes was noted except, perhaps, some slight tenderness over the region of the liver. He was kept in bed for about a week or ten days after which the icteric tinge gradually disappeared. Blood films were frequently examined but nothing of importance was found.

The case seemed one of benign catarrhal jaundice without any complications or sequelæ, and no other case occurred in the school.

Thinking the case might be one of leptospiral jaundice I examined the urine almost daily over a considerable period. There was no blood and no albumin, and in the centrifugalised deposit no evidence of leptospira in dark-field living preparations. Films made from the deposit after centrifugalising the urine were also fixed either by the vapour of iodine or osmic acid, then in absolute alcohol, and finally stained in Giemsa. On prolonged microscopical examination of these stained films I could find no leptospira, but I was somewhat surprised to see little masses of granular substance. These masses or agglomerations varied in size from that of a leucocyte to one occupying nearly the whole field of the immersion objective, and were found in almost every field of the microscope. Some were quite dense and compact, others were more loosely collected together into irregular masses. On more careful examination they were seen to consist of a collection of minute coccoid or diplococcoid bodies which were quite definite, sharply defined, and of fairly uniform size.

In some cases they seemed to be lying on a faintly blue-stained background. They were round or oval in shape, rarely in the form of a minute bacillus, and never in the form of threads. They were either single or in pairs, but none were in chains. With Giemsa they stained a red colour. They were obviously much smaller than any of the ordinary bacteria, the individual coccoid bodies measuring on an average about 0·25 to 0·35 μ in diameter.

I have never before met with these coccoid and diplococcoid bodies in any centrifugalised urinary deposit. They are too definite to be mere accidental contaminations, and were found to be present almost daily over a period of a month, although apparently varying in number from day to day. Their general appearance is somewhat like that of rickettsia bodies, but what they represent or what part, if any, they play in the causation of catarrhal jaundice is obviously at present unknown.

BRISTOL GENERAL HOSPITAL.—This institution last year admitted 5056 in-patients, with an average stay of 18·34 days, and a total cost of £8 0*s.* 10*d.*, a reduction of 12*s.* 6*d.* Of the 31,280 new out-patients over 15,000 were casualties and emergencies. The finances of the hospital are stated to be in a very serious condition. Ordinary expenditure exceeded ordinary income by £14,586, and although invested funds amounting to nearly £20,000 were sold during last year the bank overdraft on Dec. 31st was nearly £30,000. "It is not too much to say," adds the annual report, "that unless some radical change is brought about a state of bankruptcy is not far distant." Although there was only a very slight reduction in the total income there was a heavy increase in expenditure due to the opening of two new wards and the new out-patient department.

PROPOSED NEW HOSPITALS.—Two important new hospitals, one in Scotland and the other in Ireland, are proposed. Glasgow corporation is purchasing for £11,700 a site of 65 acres at Cowglen for a new city hospital to replace the existing Shieldhall Hospital. This institution, which deals with cases of infectious disease from the south side of the city, is no longer adequate.—The Louth hospital committee proposes to spend £100,000 upon the erection of a new hospital on the site of Dundalk gaol. The existing building, which is 100 years old, is incapable of improvement; the new one is planned for 100 beds, with maternity and children's wards. The hospital committee have already received more than £30,000 from the Irish sweepstakes, and hope that future shares will provide the remainder of the money required.

MEDICAL SOCIETIES

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

A MEETING of this society was held in the Institute of Pathology, Oxford, on July 1st and 2nd, Prof. G. DREYER and Dr. E. W. A. WALKER in the chair. A. B. ROSHER (London) had systematically searched for influenza bacilli in the trachea post mortem in subjects free from respiratory disease. Their frequency over several years was always greatest in the first quarter of the year—i.e., at the time when epidemic influenza is most prevalent. Interannual variations appeared to have an inverse relation to fine weather.—J. W. S. BLACKLOCK and K. J. GUTHRIE (Glasgow) found that in the pneumonias of young children the pneumococci were nearly always Type IV; in empyema and peritonitis the fixed types were more frequent, as also in older children.—R. CRUICKSHANK and J. MONTGOMERY (Glasgow) showed that about 15 per cent. of pneumonias of Types I and II became carriers for six months or more; hospital and family contacts showed about the same incidence, non-contacts only about 1 per cent.—T. HOUSTON (Belfast) pointed out that the enterococcus forms long chains in bile; it is markedly pleomorphic and may yield permanent bacillary forms; it is serologically more homogeneous than has been supposed.—J. S. CAMPBELL (Belfast) discussed in detail the enterococci which liquefy gelatin, and T. B. H. HASLETT (Belfast) a soluble specific substance secreted by them.—L. HOYLE (Leeds) found a distinct association between acute colds and the presence of influenza bacilli pathogenic to mice; pneumococci were of less moment.—J. MENTON (Stafford) found that the distinctions between the gravis and mitis forms of the diphtheria bacillus generally held, but the fermentation reactions and the colony forms disagreed in 13 per cent. of cultures.—H. J. PARISH, E. E. WHATLEY, and R. A. O'BRIEN (Beckenham) showed that the mitis form caused a fair number of fatalities.—J. S. ANDERSON, K. E. COOPER, F. C. HAPPOLD, and J. W. MCLEOD (Leeds) reaffirmed their original contention that the gravis form causes more formidable disease than the mitis form. In 417 cases of the former there were 47 deaths, in 112 of the latter none; gravis cases also showed many more paralyses. The types are stable. They also directed particular attention to the intermediate forms which in some places were common.—W. MAIR (London) drew attention to the value of trypsin serum agar as a medium for the differentiation of the barred form of the diphtheria bacillus.—G. L. TAYLOR, G. S. ADAIR, and M. E. ADAIR (Cambridge) pointed out that the results of precipitin tests done with a constant amount of antiserum differed from those done with constant quantities of antigen. They had also failed to find antigenic difference between the globulin fractions of horse serum. Some doubt was expressed as to the purity of their preparations.—A. A. MILES (London) had applied Dean's method of optimal proportions with success to the agglutination of brucella, and J. T. DUNCAN (London) to the precipitins of microfungi.—K. GOADBY (London) described the loss of antigenic power in the progressive fractionation of the substance of staphylococci. Thoroughly defatted organisms were still Gram-positive, and became Gram-negative after benzoylation.—J. D. A. GRAY (Liverpool) suggested that recent human infections with *Br. abortus* could be identified by most of the agglutinin being present in the CO_2-soluble fraction of the serum.—G. S. WILSON (London) discussed the value of sensitivity to CO_2, production of H_2S, resistance to dyes, and agglutination in the classification of the brucella organisms from different parts of the world.—F. M. BURNET (London) showed that by the use of suitable indicator strains (which are rare) for testing, it could be shown that many salmonella and other bacteria produced bacteriophage in ordinary broth cultures.—C. H. BROWNING and R. GULBRAUSEN (Glasgow) had failed to find any sign of tuberculosis on the thorough examination of mice born of tuberculous mothers and living with them for several months after birth.—MOOS H. SCHWABACHER (London), examining more than 400 cases, had found tubercle bacilli in the blood of a few instances of advanced pulmonary tuberculosis. Acid-fast bacilli were present in the slime on nearly all water-taps, and probably accounted for the diverse results obtained by other observers.—A. FLEMING (London) showed by a number of ingenious and striking experiments how the selective inhibitory actions of penicillin and tellurite could be used to advantage for differential cultures.—W. M. SCOTT (London), and T. DALLING and G. H. WARRACK (Beckenham) described the disturbing frequency with which duck eggs were infected with food-poisoning organisms.—F. P. MACKIE (Bombay) discussed the technique of bacteriophage work.—J. F. D. SHREWSBURY (Birmingham) gave a new interpretation of the life-cycle of the rare parasite rhinosporidium.—C. PRICE-JONES (London) described the metrical analysis of the red corpuscles in the microcytic achlorhydric anæmia of mature women which can be cured by large doses of iron (conveniently called "Witts's anæmia"), and showed sizes and variability changed as cure was effected.—CHRISTIANNA SMITH (U.S.A.) showed some excellent Price-Jones curves illustrating the post-embryonic development of the red cells of the rat.—F. T. GREY (London) complained that the customary calculation of the colour-index did not take account of the fact that the normal red cell count was 5·8 rather than 5·0 millions.—H. W. FLOREY (Sheffield) described the cytology of mucus production in the large intestine. Mucin first appears near the Golgi body and the cell continues to make mucin as it is discharged at the free surface. In their early stages goblet cells are indistinguishable from epithelial cells.—L. W. PRICE (Glasgow) pointed out that real metastases occurred only in some 10 per cent. of deaths from squamous epithelioma.—I. BERENBLUM (Leeds) discussed the inhibition of dibenzanthracene tumours by mustard gas, and P. R. PEACOCK (Leeds) the production of fowl tumours by tar and other agents.—JOAN M. ROSS and G. HADFIELD (London) demonstrated the destructive effects of the long-continued action of radium, and showed an endothelioma of liver which appeared to have been caused in this way.—J. F. GASKELL (Cambridge) described the histology of a fatal case of simple catarrhal jaundice; the bile-ducts were normal.—G. R. CAMERON and C. L. OAKLEY (London) tried the bile-duct in more than 100 rats; focal necroses begin in a few hours and continue to heal and re-form till the animal dies of rupture of the dilated duct; there is great growth of bile-ducts but little cirrhosis. Extensive thrombotic infarcts occur late in the disease.—W. CRAMER (London) produced a form of Bright's disease in rats by feeding them on a diet deficient in magnesium salts, especially with the addition of cod-liver oil; the animals grew

well and showed no other abnormalities.—M. J. STEWART and N. TATTERSALL (Leeds) suggested that the discovery of asbestosis bodies in clumps in sputum indicated an actual breakdown of lung tissue.—S. C. DYKE (Wolverhampton) described a case of rarefied bones in which blood analyses persuaded the surgeon to search for, find, and remove a parathyroid adenoma.—J. G. GREENFIELD and E. G. ROBERTSON (London) discussed oligodendrogliomatous cysts of the cerebrum, and H. G. GARLAND and J. G. THOMSON (Leeds) an example of myocardial tuberculosis associated with the uveo-parotitic syndrome.—J. C. TULL (Singapore) showed examples of primary carcinoma of the liver.—Numerous exhibits were on view.

REPORTS AND ANALYSES

THE GERMICIDAL ACTION OF DIMOL INTESTINAL ANTISEPTIC

IMPROVED FORM

(MANUFACTURED BY THE DIMOL LABORATORIES, LTD., 40, LUDGATE HILL, E.C.4. DISTRIBUTED BY MESSRS. SANGERS, LTD., 258, EUSTON ROAD, N.W.1)

THE manufacturers of Dimol Intestinal Antiseptic have asked us for a further series of tests [1] of the germicidal action of the antiseptic. The makers claim that they have been able to improve the product very considerably, so that whilst it now has a Rideal-Walker carbolic coefficient of not less than 42 (compared with 35 previously), it still retains its character of non-toxicity as before.

The makers have sent us samples of the new pulverettes, which are to be taken internally. The pulverettes are now chocolate-coated and are easily swallowed. Each contains 1 grain of the active ingredient, so that a pulverette should have a Rideal-Walker coefficient equal to at least 42 grains of pure carbolic acid. As on the former occasions the nature of the tests to be carried out were to be decided by THE LANCET, and the following report is the result of tests carried out for us by an independent bacteriologist.

BACTERIOLOGIST'S REPORT

The contents of the pulverettes show the new Dimol Intestinal Antiseptic to have similar general characters to the older preparation. It is a granular powder of brown colour with a heavy phenolic odour. This powder is only sparingly soluble in cold water, but may be made into a very fine emulsion (the form in which antiseptic action is best marked) by being rubbed up with a little cold water and then diluted down with water at a temperature of 70° C., after which the mixture should be kept in a water-bath at 70° C. for a few minutes. This method of preparing emulsions of Dimol is stressed because, failing care, tests may show quite erroneous results. The emulsion when made as described remains perfect for a very considerable time.

1. *Determination of Rideal-Walker coefficient of Dimol, using organisms isolated from the fæces.*—For these tests organisms were used which had been recently isolated from the fæces. In two or three cases stock cultures had to be employed, as it was impossible to obtain specimens of recently isolated ones. The strain of *B. typhosus* used was that known as the Lister strain and kept by the National Collection of Type Cultures for use in the Rideal-Walker test. The technique of the Rideal-Walker test was followed closely in each case, but the medium for the test cultures had to be modified in some cases to suit the organisms under test. In most cases 0·2 c.cm. of the test culture was used to infect the medication tubes, containing 5 c.cm. of the dilutions of disinfectant under test.

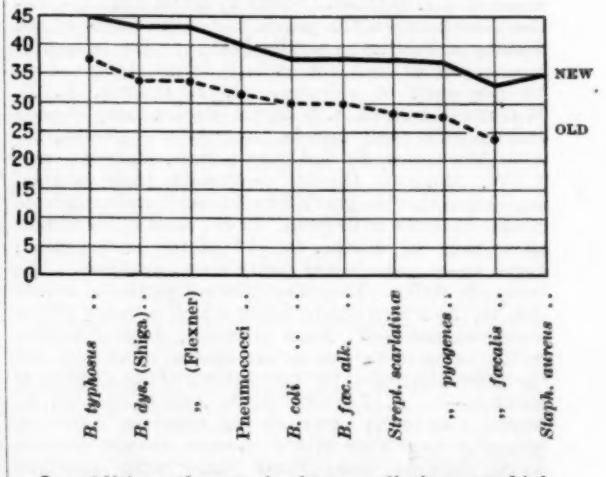
[1] THE LANCET, 1930, i., 414; 1921, i., 758.

The values obtained in this series of tests were :—

TEST ORGANISM	RIDEAL-WALKER COEFFICIENT
B. typhosus (Lister)	45
B. dysenteriæ (Shiga)	43
,, (Flexner)	43
Streptococcus fæcalis	33
,, *pyogenes*	37
,, *scarlatinæ*	38
Pneumococci	40
B. fæcalis alkaligenes	38
B. coli communis	38
Staphylococcus aureus	35
B. proteus	37
B. mucosus capsulatus	41
Hæmolytic *B. coli*	40

These coefficients when viewed in the form of a graph show a remarkably level line, a character not often seen with bactericidal substances. The graph also indicates the considerable increase in values with the new preparation, the values for the older product being shown by dotted line. Some of the organisms which were not tested previously have been omitted from this graph.

Graph showing the Rideal-Walker Coefficients of the New and Old Dimol Products.



In addition, the graph shows well the very high values obtained for such organisms as *Staphylococcus aureus* and *Streptococcus pyogenes*, both very resistant organisms to many types of disinfectant. Actually the new product shows a rather more selective action on *S. pyogenes* in comparison with the original Dimol.

2. *Determination of the degree of dilution of the antiseptic leading to death of the organisms in 15 minutes.*—An arbitrary time of 15 minutes was taken for these tests, but it must of course be realised that in vivo the antiseptic would in all probability be acting for many hours at least.

The figures obtained in this series of tests were :—

B. typhosus (Lister)	1 : 8000
B. dysenteriæ (Shiga)	1 : 7750
„ (Flexner)	1 : 7750
Streptococcus fæcalis	1 : 6000
„ *pyogenes*	1 : 7000
„ *scarlatinæ*	1 : 7000
Pneumococci	1 : 7500
B. fæcalis alkaligenes	1 : 7000
B. coli communis	1 : 7000
Staphylococcus aureus	1 : 6250
B. proteus	1 : 7000
B. mucosus capsulatus	1 : 7500
Hæmolytic *B. coli*	1 : 7500

The tests were carried out at the body temperature 37° C.

3. *Examinations for toxicity.*—In view of the enhanced carbolic coefficients of the new product and the claim that toxicity had been in no way increased, these examinations were made as full and searching as possible.

Animal experiments with rabbits showed that single doses up to 0·03 gramme (equivalent to ½ grain) per kilogramme body-weight failed to produce any toxic effect whatever. Above this dose it was found difficult to feed the drug to the animals, but such a dose as was reached corresponds to no less than 30 grains for a patient weighing 10 stone, and this is some three or four times the dose needed and recommended by the makers for therapy with the drug. The urine was carefully tested throughout the experiments but no sign of carboluria could be found. The experiments were then repeated, using doses three and four times daily, and in this way doses some five times larger than those needed for therapy could be given without the slightest ill-effects. These attempts at cumulative effect were persisted in for three weeks in the case of two separate animals.

The writer of these notes then took four pulverettes three times daily for five days, and very careful tests of the urine failed to show any detectable carboluria.

Finally, and perhaps most significant of all, the pulverettes were administered to a patient with a natural idiosyncrasy to phenolic products, as it was thought that this would be the most delicate possible test for the production of a carboluria. In this case the dose was worked up from one tablet daily to three tablets taken three times each day for five days, and again no carboluria could be produced.

I feel quite confident, therefore, in supporting the views of the makers that the new Dimol is in no way more toxic than the old product, and that in each case no evidence of absorption of the phenol portion could be obtained.

Conclusions.—(1) The new Dimol pulverette possesses a Rideal-Walker carbolic coefficient of 45 when the test organisms are *B. typhosus*. (2) With all the commoner infecting organisms from the intestine the new Dimol gives coefficients which are very high, in each case varying between 33 and 45, with an average of about 40 for the majority of organisms. (3) The antiseptic kills such organisms in dilutions which range to 1/8000 within 15 minutes. (4) The new Dimol pulverette is more readily emulsifiable than the older one. (5) In spite of the increased germicidal activity of the new Dimol, absolutely no evidence of toxicity could be obtained, and the contention of the makers that the product passes through the intestinal tract unchanged in form must, therefore, be accepted.

REVIEWS AND NOTICES OF BOOKS

Philosophy of the Unconscious

New edition in one volume. By EDUARD VON HARTMANN. With a preface by C. K. OGDEN. Authorised translation by W. C. COUPLAND, M.A., B.Sc. London: Kegan Paul. 1931. Vol. I., pp. 354; Vol. II., pp. 356; Vol. III., pp. 368; bound together. 15*s*.

THE theory of the unconscious, as most of us know it, was developed by Freud as a formula to subsume his own psycho-analytical discoveries. It was a new formation, and he apparently owed nothing to his philosophical predecessors or contemporaries except for his association with Charcot and Bernheim. Yet in some shape or other the problem of the unconscious has always been recognised, and Eduard von Hartmann's line of approach led to some of the conclusions reached by Freud along a different path. His work was originally published in 1868, and went through 12 editions; the first English translation appeared in 1884. Nearly 50 years later this new edition will still be welcome. Eduard von Hartmann claims for Leibnitz the discovery of unconscious ideas, but he himself carried the conception much further, speaking, for example, of the *vis medicatrix* as a purposive manifestation of unconscious volition and ideation (i., 159), thus attributing to the unconscious the qualities of the Hippocratic *phusis* or the psycho-analytic *Id*. Chance references to differing views bear a curiously modern look, as when he denies the repeated assertion that Locke had proved the impossibility of unconscious ideas (i., 17, where a misprint on line 4 reverses the obvious meaning), or refers to psychology, "which only knows of conscious psychic activity" (i., 285). The latter statement occurs in a passage where he describes the unconscious selection, from innumerable possible ideas, of the one appropriate to the end in view, a process rediscovered by Varendonck and described a few years ago in his "Psychology of Day-Dreams." It is to be noted that Eduard von Hartmann claimed the support of his contemporary, Maudsley, for the existence of an unconscious life of the mind, and welcomed the support as coming from one who goes as far as he can with materialistic interpretations. It is probable that if von Hartmann had been trained in medicine he would not have applied uncritically Maudsley's theory of irritable weakness of ganglion cells to St. Vitus' dance, the delirium of a maniac, or aberration in the sphere of conscious volition and ideation. Hartmann was of the period of Darwin and Huxley, and accepted their general propositions of evolution, demanding in addition a foundation of metaphysical teleological principles, a demand perhaps more likely to be granted to-day than when he wrote.

The second volume of the book is devoted to the metaphysics of the unconscious, which the modern reader will find more difficult to follow than the first. The third volume gives Eduard von Hartmann's "Weltanschauung," the pessimism of which is indicated by the title, The Irrationality of Volition and the Misery of Existence. A study of the physiology of the nerve centres leads him to the conclusion that physiological psychology is bound by its own definition to pass over into the sphere of metaphysics. An appendix contains additions and notes made by the author after the first appearance of the book. The

International Library of Psychology, Philosophy, and Scientific Method is to be congratulated on making this classic again available.

Orthopædic Surgery

By WALTER MERCER, M.B., Ch.B., F.R.C.S. Edin., F.R.S. Edin., Assistant Surgeon, Royal Infirmary, Edinburgh; Lecturer in Clinical Surgery, University of Edinburgh. London: Edward Arnold and Co. 1932. Pp. 695. 32*s.* 6*d.*

Mr. Mercer explains the appearance of "yet another book" on orthopædic surgery by his conviction that the time is ripe for the issue of a volume of moderate size containing "the essentials of the old and a summary of the new." He has evidently taken great pains in its compilation, and has produced a first-rate work. Every section is up to date and the pictures, radiograms, and diagrams are all helpful. The absence of statistics makes the book easy to read, and those wanting to pursue any particular branch of orthopædics in detail will find references to the relevant literature in the bibliography. The section dealing with tuberculous disease of bones and joints deserves special praise. This should rank high among the important text-books on orthopædic surgery.

Les poisons du bacille tuberculeux et les réactions cellulaires et humorales dans la tuberculose

By Dr. J. ALBERT-WEIL, Chef de Clinique Médicale adjoint à la Faculté de Médecine de Strasbourg; Ancien Interne des Hôpitaux de Strasbourg. Paris: J.-B. Baillière et Fils. Pp. 327. Fr.54.

THE study of the reaction of the human body to infection with the tubercle bacillus has been revolutionised during the last few years, as the result of two main streams of research; the one is the investigation of allergy as applied to tuberculosis, and the other is the extensive analysis of the numerous cleavage products of the tubercle bacillus. These two streams are now uniting in producing a new conception of the pathology of tuberculosis, using the word pathology in its widest sense as comprising histological, biochemical, and immunological studies. Dr. Albert-Weil has tried to assemble all this new work into a consecutive story and has achieved no small measure of success. Avoiding tedious laboratory detail on the one hand and specious and extravagant theories on the other, he has presented the modern conception of the tissue reactions to the tubercle bacillus in some 300 pages.

The first part of the book deals with the chemical composition of Koch's bacillus and the substances extracted from it, with brief details of the technique of extraction. The second part gives an account of antigenic substances and of cellular reactions, and includes illustrations of phagocytosis of tubercle bacilli, one of which is an unusual picture of pseudopodia in macrophages. The third part is devoted to a consideration of the biological action of the fractions extracted from the bacilli. It contains chapters on the histopathological reactions, the antigenic power of the lipoid fractions, and the tissue reactions to the protein and polysaccharide fractions. A further chapter deals with the effect of inoculating these different fractions into animal tissues and the evolution of the tuberculous lesion. Briefly stated, Dr. Albert-Weil's point of view is that each of the fractions of the tubercle bacillus has a separate function in contributing to the histology of the tuberculous lesion. The lipoids are responsible for the specifically tuberculous changes, whilst the proteins, polysaccharides, and some of the waxes cause the less strictly specific connective tissue changes. The general effect of disintegration of the tubercle bacillus on the host is to be regarded as a protein reaction; the reaction caused by tuberculin is of this order. The action of the bacillary protein is stimulated by the lipoid and polysaccharide fractions of the bacillus, whilst the protein fraction plays the principal rôle in antibody production. In the chapter on the cellular reactions in tuberculosis the author has included a good deal of the new work on hæmocytology, especially in relation to the monocyte-lymphocyte ratio and the rôle of the mononuclears generally in the immunity processes. The substantial bibliography includes references to the work of Sabin, Doan, Seibert, Long, and other American biochemists who have contributed to this new biological conception of the tuberculosis reaction.

Fundamentals of Dermatology

Second edition. By ALFRED SCHALEK, M.D., Professor of Dermatology and Syphilis, University of Nebraska. Philadelphia: Lea and Febiger. Pp. 247. With 58 illustrations. $3.

THE revision of this small volume has not greatly increased its original scope or the number of illustrations. The list of diseases, which is almost complete, is arranged in alphabetical order, and each disease receives a small section, regularly subdivided so as to embrace the nosology, symptoms, ætiology, pathology, diagnosis, and treatment. A half-tone illustration accompanies the letterpress in many places, and will doubtless assist in diagnosis and will recall mental pictures of cases seen in hospital. The reproductions are not up to the usual high standard of American text-book illustrations and in some of them—e.g., favus (p. 119), and herpes zoster (p. 129)—the lesions are out of focus and the specific conditions unrecognisable. The book should satisfy modest requirements, but it cannot be recommended to the serious student of dermatology.

The Doctor Explains

By R. H. MAJOR, M.D. London: Chapman and Hall. 1932. Pp. 286. 15*s.*

THIS book purports to explain to the lay patient why a doctor does what he does, why he percusses the chest, listens to the heart, tests the urine, and so forth. For lay people without some knowledge of biology however it seems to us far too technical; and in any case we doubt whether the general public in this country wants to know these intimate details about their vile bodies. Many of them certainly maintain the attitude of the Victorian mother, who objected to her daughter being taught the new-fangled physiology at school: "Its no use," she said, "and besides its rude." We suspect that they do not make the worse patients for their lack of interest. But what Dr. Major has actually produced is a well-written and tolerably accurate account of the historical development of the medical sciences in so far as they concern some well-known maladies—heart affections, high blood pressure, diabetes, vitamins, venereal diseases, allergy, and the rest—and it might be read with great advantage by medical students.

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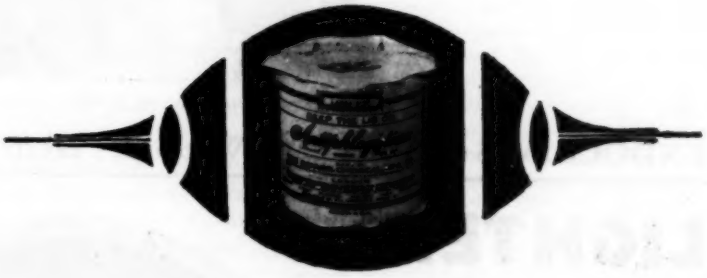

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THE LANCET.

LONDON: SATURDAY, JULY 9, 1932

THE BRITISH PHARMACOPŒIA, 1932

THE Medical Act of 1858 gave power to the General Medical Council to publish a book containing a list of medicines with directions for preparing them, and by the subsequent Act of 1862 the exclusive right to publish the Pharmacopœia was vested in the Council. A new British Pharmacopœia, which will become official on Sept. 30th, became available for inspection at the several offices of the General Medical Council on July 4th. Although some three months will elapse before the new standards become binding by law, it seems desirable that medical practitioners should take advantage of opportunities, as they occur, to become acquainted with its contents. We propose in a future issue of THE LANCET to set out the more important differences between the new issue and that of 1914. In the meantime some of the fundamental changes and the principles which must have actuated the Commission in making these changes may be examined.

It will be remembered that, following a conference in 1926 of representatives of the General Medical Council and the Pharmaceutical Society, the Committee of Civil Research appointed a subcommittee, with Lord MACMILLAN as chairman, charged to make recommendations in the existing law and practice relating to the preparation of the Pharmacopœia. That subcommittee reported in 1928, and although no change in the law was advised important alterations in the methods of revision were advocated. As an outcome of this report the Pharmacopœia Commission was appointed as a permanent body with an office and a secretariat, and was empowered to appoint subcommittees to deal with specialised sections of the work. The British Pharmacopœia, 1932, has been prepared by this Pharmacopœia Commission, of which the personnel was as follows: Dr. A. P. Beddard (chairman), Mr. R. R. Bennett, B.Sc. (chairman of the British Pharmaceutical Conference, 1928 and 1929), Dr. J. H. Burn (director of the pharmacological laboratory of the Pharmaceutical Society of Great Britain), Prof. F. R. Fraser (London), Prof. H. G. Greenish (London), Prof. J. A. Gunn (Oxford), and Mr. T. Tickle, B.Sc. (public analyst to the County of Devon), with Dr. C. H. Hampshire as secretary. This is a strong team. Of the six subcommittees appointed, the largest was the clinical subcommittee, composed of 32 medical and dental representatives of the Royal Colleges and societies and various associations. Separate reports have been issued by several of the subcommittees and valuable help is acknowledged from workers in allied subjects. Routine testing and research have been carried out by Miss Smelt for the Commission and by a number of pharmacists working in their own laboratories. The task of collating all the material was entrusted to an editorial committee, consisting of Dr. A. P. Beddard, Prof. Fraser, and Prof. Gunn.

It is clear that the aim of the Commission has been to produce a book of standards rather than a formulary, and this purpose has been achieved the more easily by an arrangement whereby those preparations which have been deleted from the Pharmacopœia of 1914 will be included in the next issue of the British Pharmaceutical Codex. The number of drugs and preparations which have been deleted is 357, a large total, but there is sufficient reason for each omission. The decision which drugs should be included in the new work has been based upon an evaluation of their medicinal properties and not upon the frequency with which they are prescribed. Redundancy in properties, as possessed by the tannin-containing astringent barks and roots, accounts for the deletion of a considerable number of crude drugs whose sole active principle is tannin, and tannic acid itself is left in the Pharmacopœia as the representative of a group of vegetable forms of materia medica which were formerly included. The number of formulas has also been reduced, and if some regrets are expressed for the omission of tincture of chloroform and morphine, and gall and opium ointment, it may be remembered that these preparations will be standardised by the Codex and that the practitioner may order the ingredients as components of a prescription. A notable omission is the group of hypodermic injections of the British Pharmacopœia 1914; the reason for this, as explained in the Introduction, is that it is deemed preferable for the practitioner to prescribe the dose of the active principle as such, rather than the dose of an official hypodermic injection. Although, as we have said, no hypodermic injections have been retained from the last edition, a number of compound injections have been introduced such as bismuth metal, bismuth salicylate, iron, mercury, mercurous chloride, and sodium chloride with acacia. These and solutions for injection of all chemicals mentioned in the book must be sterilised by one of the five methods given in the Appendix. It has been recognised that a substance may be injected by different routes; doses therefore are given for subcutaneous, intramuscular, intravenous, intrathecal, and intradermal methods of administration. It should be added that many of the formulas for powders and pills have been omitted on the ground that the prescribing of combinations of drugs, in these forms, should be left to the individual practitioner.

Biological methods of assay are introduced for the first time, and a number of antitoxins, two vaccines, and the Schick control and test toxin, with prophylactic toxin, have been added. Certain materials—e.g., barium sulphate and iodophthalein—which are used for diagnostic purposes, have been included on the ground that standards for them are necessary in order to exclude impurities which might be harmful. Although international standards have recently been adopted for three vitamins the Commission has approved only of the addition of one vitamin preparation to the Pharmacopœia—namely, an irradiated solution of ergosterol, the antirachitic activity of which is determined by the biological assay of vitamin D. Industrial methylated spirit is now described in the Pharmacopœia, and its use, under definite conditions, is permitted for the preparation of specified liquids intended for external use and for the preparation of certain medicines for internal use, if the material is so treated as to eliminate methylated spirit from the final product.

The arrangement of the monographs resembles, in general, that of the United States Pharmacopœia, and separate features, such as characters of drugs, tests for identity and purity, and methods of assay are set out more clearly than in former issues. The greater precision of the American official volume had commended it to a considerable public, and the Pharmacopœia Commission was well advised to collaborate with the compilers of the United States Pharmacopœia with a view to obtaining uniformity in standards, and in the strength of galenical preparations. This coördination will benefit Canadian practitioners who are called upon to take cognisance of both pharmacopœias. It is also satisfactory to know that the British and American Commissions have undertaken that, so far as is possible, future revised issues of the respective Pharmacopœias shall be issued alternatively; thus, the next American Pharmacopœia is likely to appear during the year 1937, and the next British Pharmacopœia in 1941; thereafter the periodicity of publication is to be at ten-yearly intervals. Uniformity with the practices of other countries has been assisted by the adoption of international standards for potent substances wherever this has been deemed advisable; thus, tinctures of belladonna, opium and squill, dilute hydrocyanic acid, Fowler's solution, syrup of ferrous iodide, and mercury ointment, now contain the same proportion of active constituents in all countries where the International Agreement has been ratified. There is convincing evidence throughout the book that more than mere revision has been attempted. The Pharmacopœia has been rewritten with a thoroughness which practitioners will appreciate. Pharmacy has been entrusted with a greater proportion of the task than in former editions, and medicine has benefited by the expert advice and assiduous research which has resulted in the production of an official volume of standards of great merit.

PROGNOSIS OF NEPHRITIS IN CHILDHOOD

On another page appears a study of the prognosis of acute nephritis in children. There are many difficulties inherent in such investigations, and not the least is the confusion in nomenclature. Dr. TALLERMAN rightly insists mainly on clinical observations as his criteria in diagnosis. The lack of parallelism between clinical symptoms, pathological findings, and renal function tests is at present the greatest barrier to progress in our knowledge of Bright's disease. The admirable studies of ADDIS and OLIVER,[1] published last year, bear this out in striking degree, and led them to adopt the general term "hæmorrhagic Bright's disease" to include a number of varying clinical and pathological types of nephritis in which the passage of albumin, casts, and red blood-cells in the urine were the prominent features. They emphasised the importance of the blood-cells and attempted by quantitative estimations of these cells to gauge the progress of the disease. Albuminuria is probably a less reliable index of renal damage, and severe lesions of the kidney may be present without albumin, or with only faint traces of it in the urine. Conversely, albuminuria is not uncommon as the result of a harmless renal leak, though with a history of nephritis it is always dangerous to diagnose it as such. The urea-concentration and phenolsulphonephthalein tests of renal efficiency, which have been used in TALLERMAN's cases, are in general not capable of demonstrating the mildest degrees of nephritis. Certainly the blood-urea estimation is only of the coarsest value, since figures above 40 mg. per 100 c.cm. are probably seldom found unless about half the kidney tissue is—at least at the time of the test—completely functionless. A normal blood urea is therefore of no value in excluding the presence of renal disease.

Thus the difficulty of detecting minor degrees of nephritis cannot at present be solved by simple renal function tests, but must largely depend upon the clinical signs and symptoms and careful microscopical examination of the urine. In TALLERMAN's series these points have been studied, and he reaches the conclusion that the prognosis of acute nephritis in childhood is good, two-thirds of his patients being regarded as having recovered at an interval of from 18 months to 3½ years. Although the number of cases (27) is small and the period of observation short, most workers will probably agree with this conclusion—with certain limitations. As a study of the case-records shows, a number of the patients would fall into the group described by many as acute hæmorrhagic nephritis, in which a focal infection, usually in the tonsils, appears to be the causal factor. In such cases, in which hæmaturia is the prominent feature, and other evidences of nephritis—such as œdema or any raising of the blood pressure—are usually absent, the outlook after tonsillectomy is generally regarded as extremely good. TALLERMAN's cases bring out this frequency of tonsillar and upper respiratory

[1] The Renal Lesions in Bright's Disease, by Thomas Addis and Jean Oliver. New York, 1931. See THE LANCET, 1931, ii., 302.

infections; for more than half his cases are noted as having sore-throat or cervical adenitis at the onset. Other cases, however, do not have such a good prognosis, and in the acute attack it may not be easy or even possible to decide on the "type" to which a particular child belongs. The degree of œdema, the condition of the blood pressure, or the amount of hæmaturia do not seem to be at all sure indications of future events. Nor, apparently, is the degree of renal impairment as shown by efficiency tests, or indeed the length of stay in hospital, any guide in the initial stage. Where an obvious tonsillar infection can be eradicated the outlook might be expected to be better; but this again is not always so.

The problem thus remains of detecting in the early stages, during and soon after the acute attack, those cases that are likely to do badly. It has yet to be discovered whether there are several forms of "acute nephritis" and, if so, how we are to distinguish them; or whether (as appears unlikely) the difference lies in the severity of the attack, or possibly in the length of time between the onset and the beginning of treatment. To these problems the results reported by TALLERMAN do not provide the answer; but the value of such careful observations on the prognosis of nephritis makes his paper of interest and importance.

SCOTLAND LEADS

FEW would have been sanguine enough to anticipate a swift official response to the Report of THE LANCET Commission on Nursing. Yet less than five months after its issue comes the welcome news that a statutory body has resolved to alter its regulations in accordance with Recommendations XL. and XLI. At a meeting of the General Nursing Council for Scotland held in Edinburgh on June 24th, Sir JOHN MACLEOD presiding, a resolution was passed in these terms:—

"Following consideration of THE LANCET Commission's Report and the discussions at previous meetings of the Council, it was resolved that the Preliminary Examination should be divided into two parts (*a*) Anatomy and Physiology and Hygiene; (*b*) Theory and Practice of Nursing, Part I., and that (*a*) may be taken before but not more than two years before the nurse enters the wards. It was further resolved that a copy of this resolution be sent to the General Nursing Council for England and Wales." [1]

This is a definite modernisation of educational policy which will remove, for Scotland at least, that "very general failure to coördinate entry to the nursing profession with the later stages of school life" which the Commission deplored.

The implications of the change may be briefly stated. It will have the dual advantage of giving the prospective nurse a definite objective during her last years at school, or during the years between school and hospital, and of relieving her in her first hospital year from the strain of preparing for examinations after a long day's work in the wards. When it is remembered that in more than 80 per cent. of approved hospitals routine ward work takes up between 9 and 11 hours of every day, excluding meals and off duty times, and is spread over at least 13 hours,[2] it is clear that only an unusually robust girl can spend her evenings learning anatomy, physiology, and hygiene without getting overtired. It is satisfactory to be assured that head mistresses of girls' secondary schools are confident of being able to supply suitable teaching. At the recent annual conference of the Association of Headmistresses, the president (Miss E. STRUDWICK, High Mistress of St. Paul's Girls' School) referred to THE LANCET Commission's Report as one of the outstanding events of the year. Several members of the Association are prepared to start classes at once, being convinced that many more of their senior girls would take up nursing if they could complete a definite stage of their nursing course from school, and that parents who might otherwise remove their daughters from school would let them stay on for another year or two after the age of 16 with this object in view. There is no suggestion of such specialised studies before the age of 16. No detailed regulations have yet been issued by the General Nursing Council for Scotland, but it seems likely that girls taught under satisfactory conditions in English secondary schools will be eligible as candidates for the Preliminary State Examination, Part I. There are 28 hospitals in Scotland approved for complete training, including some famous training schools. In 1930–31 less than half the hospitals replying to the questionnaire issued by the Commission were in a position to refuse candidates with no secondary education. There is every reason to hope that the enlightened policy initiated by the General Nursing Council for Scotland will stimulate recruitment of the desired type of girl for work in hospitals.

[1] The Nursing Times, July 2nd, 1932, p. 709.

BRITISH SOCIAL HYGIENE COUNCIL

AT Livingstone Hall, Westminster, on July 5th, Sir Basil Blackett, president of the British Social Hygiene Council, delivered an address entitled "A Layman's Plea for a Positive Health Policy," in which he urged upon the State to take stock of the results of the expenditure upon public health, and upon the public to demand full value for such expenditure. On Thursday last Mr. Amery took the chair at a one-day Imperial Conference of the Council, which medical practitioners from the Dominions, on leave in London, had been specially invited to attend.

[2] These figures refer to approved hospitals in England and Wales; the Scotch returns to the questionnaire circulated were not tabulated for the Commission, for reasons stated in Appendix XVIII., para. 1, but were studied separately, and the conclusion was reached that no notable difference in conditions of service and recruitment appeared to exist between the countries.

BOARD OF CONTROL.—With the approval of the Minister of Health, the Board have appointed Mr. J. H. Cobb, F.R.C.S., as honorary consultant in connexion with diseases of the ear, nose, and throat occurring amongst the mentally defective patients at Rampton State Institution, Retford, Notts.

ANNOTATIONS

CRIME AND PUNISHMENT

IN a letter to the *Manchester Guardian*, which appeared in its issue for June 25th, 13 vice-presidents of a new Association for the Scientific Treatment of Delinquency and Crime appeal to the public for their interest, coöperation, and financial support. They allege that the first aim of the new organisation will be to promote economy of effort by correlating and consolidating existing preventive work in the particular sphere of its activity. In addition, it will seek to secure contact and coöperation between all the authorities concerned—social, legal, medical, and psychological. Moreover, it hopes to establish observation centres under qualified specialists, and will itself initiate and promote research into the causes and treatment of delinquency and crime along more comprehensive lines than are possible at present. Dr. E. T. Jensen is named as the chairman of the Organising Committee, and, as the medical examiner of the Institute of Journalists, he should have little difficulty in obtaining for the new association all the publicity it may need; three of the vice-presidents who sign the letter are Alfred Adler, Sigmund Freud, and C. G. Jung; the others are Lord Allen of Hurtwood, William Brown, W. J. Brown, Havelock Ellis, Edward G. Glover, Ernest Jones, Edward Mapother, Emanuel Miller, Otto Rank, and H. G. Wells—a company in which the psychoanalysts predominate. Apart from the promise of research the proposed programme, including the observation centres, coincides with the declared aims and work of various societies already in active existence in England, the oldest and most successful being the Howard League, which has done much to secure a sane and efficient public opinion on the best methods of dealing with the problem of the criminal.

In a publication prepared for general attention the new association registers its intention to establish as early as it can an experimental clinic for the investigation and treatment of carefully selected cases. In this clinic it is hoped that various schools of criminal psychology will be represented, so that all known methods of examination and treatment may be tried. Series of lecture-discussions will be organised in conjunction with this clinic, and publications reflecting its scientific outlook will be issued. It is intended primarily to investigate and treat cases of children and young adults who may come under the notice of the police, and the association believes that as the public learns to appreciate the success attained in the treatment of such cases, parents, who had taken untold trouble and suffered incalculable anxiety in keeping secret the delinquent tendencies of their children, will bring these children to the clinic for early treatment. Certain practical recommendations are made, and these are said to be based largely on the terms of the report prepared, at the request of the Medical Research Council, by Dr. G. W. Pailthorpe. They are as follows: "(1) The establishment of clearing stations (observation centres) at which first offenders would undergo a psychological and physical examination, and be sent for treatment as conditions demand, either to (*a*) psychotherapeutic clinics (for cases of mental conflict, border-line psychotic cases, &c.), or (*b*) re-education centres for treatment individually or in groups, or (*c*) permanent protection and supervision without loss of freedom for those not amenable to scientific treatment but not dangerous to the community (certain abnormal and mentally deficient types), or (*d*) permanent segregation for hopeless cases (anti-social mental defectives, psychotics, &c.); and (2) the formation of laboratories for psychological research." An examination of the reports of the Prison Commissioners will reveal that, although the terminology used is somewhat different, many of the activities proposed, including laboratories, have been adopted or are in process of being adopted as part of the official routine of dealing with offenders; moreover, the early treatment centres now being instituted by local authorities under the Mental Treatment Act will be concerned with some of this work, which is the particular care also of the Institute of Medical Psychology, the child guidance clinics, and similar bodies in many of our large towns. Finally, the recent Departmental Committee on Persistent Offenders has recommended that medical psychologists should be attached to one or more penal establishments in order to carry out treatment in selected cases, and advocates the practice of allowing a certain number of offenders to attend approved mental hospitals or out-patient clinics on probation.

It will be seen, therefore, that much of the work the new association proposes to initiate is already being done, and it will be a pity if the money to be collected is to be spent in instituting attempts at unnecessary reduplication. The most hopeful of its proposals is that dealing with the establishment of a central experimental clinic. Much remains to be done in the region of research, in testing theories, establishing norms and standards, discovering and perfecting methods of treatment. This such a clinic could undertake usefully, and especially so if it was organised as part of a larger institution devoted to the study of legal medicine as a whole. Until now medico-legal institutes have been devoted to the study of such subjects as morbid anatomy, forensic chemistry, and toxicology; the time has come for them to widen their outlook and to take all crime for their province; accordingly, their establishments should be enlarged to include departments of criminal psychology and sociology, forensic psychiatry, and penology. London has no medico-legal institute; the creation of such an institute has long been advocated by THE LANCET, and in the comprehensive form now suggested, as a National Institute of Legal Medicine, its establishment would be particularly welcome.

URETERAL CALCULI

IN reviewing 200 cases of ureteral calculus Dr. Emerson C. Smith[1] describes methods of treatment which mostly follow the usual lines. Ureteral colic is treated by full doses of morphia, with amytal as an adjunct; a hot bath raised in temperature to the limit of toleration; and in the few cases not relieved by these methods the insertion of a ureteral catheter beyond the calculus. For calculus anuria immediate bilateral ureteral catheterisation should be done, with bilateral pyelotomy, if the anuria persists for another 24 hours or more. For the removal of the stone cystoscopic methods are advocated, and they proved successful in 81 per cent. of the cases; in 17 per cent. open operation was performed and in 2 per cent. treatment was refused. Operation is desirable when the stone is not mobilised after two or three cystoscopic manipulations or if it is of more than 1 cm. diameter; it is also required in the presence of acute pyelonephritis, solitary kidney, or

[1] Canad. Med. Assoc. Jour., May, 1932, p. 560.

an inefficient kidney on the opposite side. Of the 34 patients operated upon, uretero-lithotomy was performed in 22, nephrectomy in 10, and ureterectomy in 2, with one fatal result occurring in a hæmophilic who had a uretero-nephrectomy. The cystoscopic manipulations were simple ureteral catherisation, dilatation by multiple catheters or a Garceau catheter, ureteral meatotomy, ureteral anæsthesia, and the injection of oil; but Smith doubts the efficacy of the last two methods, and he did not use them in the second 100 cases. In 38 cases the ureteral orifice required division by scissors or fulguration which was carried out without any troublesome hæmorrhage. In 79 cases the condition was relieved by the first dilatation, in 36 by the second dilatation, and in 9 by the third. If multiple catheters are inserted and then twisted round several times, the calculus occasionally comes with them on withdrawal; this is a method similar to one sometimes used in the removal of a urethral stone. In the after-treatment what is of most importance is the relief of any obstruction in the urinary tract and the administration of large quantities of fluid.

ŒDEMA OF THE LARYNX

ŒDEMA of the larynx, though fortunately uncommon, is a very serious and important affection, for it may come on suddenly and cause death by asphyxia with great rapidity. The swelling, of course, occurs most in those regions where the submucous tissue is lax, on the arytenoids, ary-epiglottic folds, epiglottis, and in the subglottic region. The latter is the situation in which it most readily causes dyspnœa; it cannot affect the firm structure of the vocal cords to any great extent, and the old term "œdema of the glottis" is therefore a misnomer. Œdema of these regions may be produced by a great variety of causes, and these may be grouped into inflammatory and non-inflammatory. Of the inflammatory class, simple laryngitis hardly ever causes sufficient œdema to produce dyspnœa in adults, though it may do so in children. The very severe streptococcal invasion of the throat, known as septic pharyngo-laryngitis, may cause great œdema; but it overwhelms the patient by toxæmia more often than it kills by suffocation. Œdema occurs as a complication of the laryngitis of small-pox, scarlet fever, measles, enteric, and diphtheria, and as a result of septic infection of tuberculous, syphilitic, or cancerous ulcers; it also spreads to the upper aperture of the larynx from such lesions in the neighbourhood as quinsy or any form of ulceration of the fauces and pharynx. Finally, œdema follows various kinds of traumatism, surgical instrumentation, foreign bodies, scalds from steam and hot fluids, stings in the throat by wasps or other insects, corrosive poisons or irritating vapours, such as gases used in the war.

Non-inflammatory œdema occasionally comes on with great suddenness as a result of either acute or chronic nephritis, of which it may be the first symptom to attract attention. Angeioneurotic œdema of the larynx is an important variety in this class, for it may produce severe, and even fatal dyspnœa; it comes and goes with peculiar rapidity, and usually alternates with swellings in other regions. The cause is often undiscovered, but in some people it results from certain articles of diet such as lobster or other shell-fish. A similar swelling may be caused by the administration of iodides in susceptible individuals, and is generally associated with other symptoms of iodism. Many remedies are available for the treatment of the slighter cases, but the more severe forms cause asphyxiation so rapidly that the only hope is that a doctor can arrive in time to open the trachea. A low or middle tracheotomy is advisable, for a subglottic swelling may extend for some distance down the trachea, but in the most urgent cases the windpipe can be most quickly opened through the crico-thyroid membrane.

VACCINATION IN THE ARMY

IT will be seen from the Parliamentary columns of our issue of June 11th that the Financial Secretary for the War Office was asked in the House why army officers had been instructed to discontinue the use of boracic lint and of vaccination pads. The answer was given that "The decision not to issue further supplies of boracic lint and vaccination pads was made in the interests of economy"; the Minister adding that boracic powder and plain lint were being issued instead. The way in which the question was asked seems to have led to wrong impressions as to the significance of the answer. The following is extracted from the Regulations for the Medical Services of the Army, 1932 (Appendix No. 18, para. 11):—

> After vaccination the lymph must be allowed to dry before application of the dressing which should be sterile gauze secured in position by a bandage or by zinc oxide strapping applied above and below the vaccination area. The strapping must not be applied directly over the site of vaccination. If unsuitable strapping is used to secure the dressing, urticarial or scarlatiniform rashes may be produced.

The boracic powder and plain lint are obviously to be issued in substitution of boracic lint if required for general purposes.

THE AMERICAN HOSPITAL SYSTEM

THE American Medical Association admits to a hospital register only those institutions which fulfil certain requirements.[1] Those seeking registration must be "approved for interns and residencies in specialities" by the Association, and approval depends on the following criteria: (1) a supreme governing body with an executive officer to carry out its policies; (2) a staff of physicians who are "properly qualified as to training, licensure, and ethical standing"; reservation of staff membership for persons with an orthodox medical qualification; (3) a competent nursing staff employing an adequate number of registered nurses; (4) an adequate record system; (5) pathological examination by a competent pathologist of all tissues removed in the operating room; (6) ready access to radiological equipment and service; (7) a staff and management conforming to the principles of medical ethics accepted by the Association. The registration of hospitals is carried on by the Council on Medical Education and Hospitals of the Association. Among these registered hospitals only 691 are approved for internships; an interesting condition of approval is an average of 15 per cent. autopsies on deaths in hospital. The average number of beds per intern is now 42, the ideal ratio suggested being 25. To have held a post as intern is naturally regarded as an essential part of the training of a physician planning to specialise, but it is not suggested that such experience is held to be valueless unless gained in a hospital approved for this purpose. It may be presumed, however, that an internship held in a non-approved hospital might not be recognised as adequate preliminary training for admission by a post-graduate medical school. The situation in America differs from that found in this country in that the

[1] Jour. Amer. Med. Assoc., June 11th, p. 2077.

vacancies for interns, which correspond to house surgeons and physicians, far exceed the number of graduates annually available to fill them; this year the 691 approved hospitals offered 6054 internships in competition between 4735 newly qualified practitioners. There appears to be an increasing demand for certification of specialists in America, and "residencies" in specialties to follow internship are regarded as a desirable preliminary to further training. Most hospitals offer 12 months' service under consultants in the special subject to be studied, but in the leading teaching hospitals the period is extended to three or even five years.

A development of the hospital service which was started in November of last year is described in the same issue of the journal by Dr. George Baehr. This is a diagnostic clinic for patients of moderate means which has been established in connexion with the Mount Sinai Hospital, New York. Patients are accepted only if referred by their physicians, and the work is limited to diagnosis. After investigation, the patient is referred back to his own doctor, who is given as complete a report as possible, together with detailed advice on appropriate therapy. This sounds like medicine made easy. A flat fee of $35 is charged for all patients, without regard to the number of investigations required. This, it is said, has been purposely made about double the average fee charged by a specialist for one consultation or a major laboratory examination, so as not to attract the patient who would otherwise normally go to an individual consultant. It is rather difficult to follow the argument on which the fee is based. Its advantage to the patient is that he knows in advance the cost of diagnostic procedures, and to the doctor that he need not limit his demands for investigations out of consideration for his patient's pocket; but since a conscientious doctor would only refer patients who need several investigations, the service may not be easy to provide without loss. At present, half the gross income is used to pay the medical staff, the other half goes towards non-professional expenses; so far it has been run at a loss, but five months is not long enough to judge the merits of the scheme from the hospital's point of view. It has the advantage that many ambulatory cases which would previously have been admitted to hospital have been investigated through the centre; in this way cost to the hospital and loss of time to the patient has been avoided.

SECRETION OF MUCUS BY THE TRACHEA

THE two types of tracheal cells which secrete mucus—the goblet cells of the mucosa and the acinar cells of the submucosa—are controlled by different mechanisms, and these have lately been studied experimentally by Prof. H. Florey and collaborators.[1] In experiments on cats, the amount of secretion poured into the trachea was estimated by means of an oil manometer connected to a length of the trachea which was itself filled with oil. Stimulation of the peripheral ends of both the vagus and the recurrent laryngeal nerves produced a secretion which could be inhibited by atropine. In addition a reflex secretion could be produced by stimulating the central end of the vagus. After a pilocarpine injection—which likewise is inhibited by atropine—there is a secretion which can be seen collecting in droplets on the surface of the mucosa and this probably indicates its origin from the submucous glands. Mucosal stimulation by chemical irritants calls forth mucus, but no evidence was obtained to show that this was the result of a reflex. The drying effect on the mucous membrane of a current of dried air was shown to be much the same before and after atropine injection, but there was an alteration in the character of the fluid after the injection, and it appears to have been a transudate from blood-vessels rather than a mucous secretion. The importance of mucus as a vehicle for ridding the large air-passages of foreign bodies was well brought out in these experiments; small particles will adhere to the sticky mucus and this is constantly propelled by ciliary movement towards the larynx, while a less sticky and thinner secretion is not so effective in taking up the particles. Apparently the important function of mucus is to assist in the extrusion of foreign material, and it might be expected that any chronic irritation of the air-passages would lead to its production in greater quantity. Thus it is interesting to find that in cases of chronic bronchitis examined post mortem there was a great increase in the number of goblet cells. In animal experiment it was found that a more intense irritation of the trachea caused the columnar and goblet cells to be replaced by a stratified epithelium similar to that of the urinary bladder.

[1] Brit. Jour. Exp. Path., June, 1932.

CENTRES AND TIMES OF OSSIFICATION IN DIFFERENT COUNTRIES

ONE of the inevitable consequences of the introduction of X rays as a laboratory aid was a change in the accepted views on centres and times of ossification: the method which could give many and quick results was bound to supersede and correct the findings of the older and more laborious anatomical investigations. A contribution on skeletal development from the radiological side by Dr. Ruckensteiner[1] does not bore the reader with lists of variations or conglomerations of cases, but gives the general average results of the author's experience of the human skeleton; sexual and other differences are indicated, and also the occasional varieties and accessory centres which may be encountered. A special feature of the book is the introduction of some large "curves" of ossification times; the reader who realises that these are curves of time-periods, and not of progress of any particular ossification, will find these graphic records stimulating. We would like to have seen sexual differences noted on the curves. There is no unanimity in this country on the times of appearance of ossific centres, but it is noteworthy that the statements which appear in our recent text-books differ considerably, especially in the limbs, from those set out by Dr. Ruckensteiner. It seems possible that this is the expression of a real difference, racial or environmental. If such differences exist, they afford an explanation for Dr. J. W. Pryor's ossification dates (Kentucky), which are earlier than those accepted as normal in Russia and Mid-Europe. It may be that the different dates found by observers working in different parts of this country can be referred in some way to environmental influence, which may also affect tables of dentition. It does not seem likely that any agreement on the "normal" and on the meaning of differences can be reached until a concerted radiological and anatomical inquiry into centres and times of ossification is made. Dr. Ruckensteiner's records provide a useful pattern, and

[1] Radiologische Praktika. Bd. XV. Die normale Entwicklung des Knochensystems im Röntgenbild. By Dr. E. Ruckensteiner, Assistant in the Röntgen Institute of Vienna. Leipzig: Georg Thieme. 1931. Pp. 79. M.18.60.

a repetition of his work in different districts and countries would form a very substantial foundation for such inquiry.

ECONOMY AND CHILD WELFARE

THOSE interested in the services for maternity and child welfare have good reason to be heartened and encouraged by Sir Hilton Young's presidential address at the opening session of the National Conference on Maternity and Child Welfare, held at King George's Hall, Caroline-street, W.C., from July 4th to 6th. Dr. G. F. Still presided over this session. The Minister of Health went straight to the point when he said to the assembled delegates: "You will be concerned to ascertain how far the work can be maintained and developed in face of the present demand for reduction of public expenditure." This matter, he pointed out, is not now primarily dependent on the amount of the Exchequer grant, since, under the Local Government Act of 1929, the assistance for all social services is included in a single block grant. It is therefore to local authorities that the country must look for continuation and expansion of care for motherhood and infancy. He thought those concerned should be released from their most urgent fears as to the availability of necessary funds to carry on this work. He reminded the conference of the £5,000,000 set aside, at the time when the Act was passed, for the express purpose of developing the local services, and said that, in his opinion, maternity and child welfare was peculiarly fitted to receive help from that fund. When a circular on economy was addressed to local authorities, the Minister said he had advised them to give special attention to the maintenance of services required in the interests of the public health, and had made it clear that maternity and child welfare stood in the forefront of those urgent services. The interest of the Ministry, he said, is entirely unaffected by the financial crisis, which indeed makes it more important than before that the best possible value should be obtained for every pound spent. However great the difficulties of our condition, however necessary economy may be (and it is vitally necessary), we must not allow ourselves to be confused or alarmed into the false view that all restrictions of expenditure are economical. Certain forms of expenditure on basic health factors are the truest economy, and child welfare is one of those factors. Some local authorities are not rendering the help to mothers and children which they have the power to render. Sir Hilton Young said it would be his endeavour to persuade all to come up to the standard of the best. Though the present is not a time when expansion and advance can proceed at full speed, it need not be a time of lethargy. There is real advantage in periodical opportunities of perfecting existing services. The address of the Minister of Health was followed by a paper on maternity and child welfare work under the new economic conditions, by Dr. G. Arbuckle Brown, of Glasgow, who also spoke of the need for an exhaustive scrutiny of our local administration with a view to the elimination of non-essentials. Miss A. Sayle (Women Public Health Officers' Association) expressed concern at some local authorities who have attempted to economise by reducing their public health staffs, and at some others who have made changes for the worse in the conditions of service of health visitors. The personal education of mothers in their homes cannot, she said, be carried out adequately if the staff is so small that each family can only be visited at long intervals. Miss Lecky (Putney) deplored the lack of any health service for boys and girls between the ages of 14, when they leave school, and 16, when they come under the national health insurance scheme. Mrs. W. A. Potts (Birmingham) feared that care for mental defectives and victims of venereal disease might be cut down; and Councillor Young (Dudley) thought that none of the social services could be curtailed without injury to mothers and children. He was sorry that the impetus given to the nursery school movement a year or two ago had not been carried on in the interest of economy. Taken as a whole, the conference opened in hopeful vein, an impression deepened by the fact that so large a number of delegates applied for membership that it was necessary to transfer the meetings from the Guildhall to a larger hall.

SERUM TREATMENT OF HODGKIN'S DISEASE

A NEW method of treating Hodgkin's disease is said to be giving promising results. Dr. Leslie Utz and Dr. Leila Keatinge,[1] both working in connexion with the Cancer Research Institute, Sydney, offer tabulated records of 25 patients suffering from the condition, all of whom have been treated primarily by serum injections and some of them secondarily by X rays. The first patient came under treatment in 1929, and of the series of 25, six are dead (of whom three were in a moribund condition from the outset), one died from an accident, one from Hodgkin's sarcoma, and one was lost sight of after four injections and is presumed dead. The 19 other patients are progressing favourably, many of them being back at work, although it is obviously too early to say that any of them are cured.

The technique of the treatment is briefly as follows. An emulsion is made from a small portion of an affected gland—preferably cervical—and injected subcutaneously into the loose thigh tissue of a hen. After 12 days the hen is lightly anæsthetised and 5 to 10 c.cm. of blood is withdrawn. On the following day the serum is injected, after due precautions have been taken to ensure sterility, into the patient, a second dose being given two days later. Seven days after the first venepuncture the hen is bled a second time, and a second batch of serum is prepared, injections being given as before. Four such series are given, followed by a fortnightly series of injections, continued until the enlarged glands have entirely disappeared, the total dosage thus varying from a minimum of 10 to a maximum of 49 doses. The tabulated records show, besides a speedy diminution in the size of the adenomatous glands, a definite and progressive improvement in the accompanying anæmia. The cancer research treatment subcommittee at the outset were reluctant to subject patients to an unproven course of therapy, but the dramatic results obtained in the case of the first patient, who had "reached the end of ordinary therapeutic resources," removed their doubts, and it has now become a routine measure to draft all the cases of Hodgkin's disease to the laboratory of Utz and Keatinge. In many of the cases reported the glands disappeared with serum treatment alone, but, as a rule, two or three weeks after the first injection the palpable masses of glands became relatively enlarged, owing to the loosening and separation of the clumped masses of adenomatous tissue. From this time onwards the glands usually began rapidly to retrogress, so that within five or six weeks of the first injection there was often little evidence of any glandular enlargement at all. In

[1] Med. Jour. of Australia, 1932, i., 521.

some of the cases, however, the retrogression was slower or seemed to become stationary, and for these patients deep X ray therapy, generally a single dose to any one field, was combined with the serum treatment. It is stated that when, after serum therapy, irradiation was given in addition no increase in the size of the glands in that area was ever found on re-examination at later dates.

As far as possible a purely autogenous serum is used, one hen being maintained for each patient, but the use of a stock serum seems to have met with equally good results in cases where an autogenous serum could not be prepared. In an earlier paper,[2] Utz and Keatinge explained that their work was based on that of Elise l'Espérance,[3] who has brought forward evidence in favour of the view that Hodgkin's disease is an atypical tuberculosis due to the avian type of tubercle bacillus. The experiments of Utz and Keatinge bear out this theory, and it was for this reason that the hen was chosen for the production of serum. No single patient whose condition was definitely proved histologically to be true Hodgkin's disease failed to react to the serum injections, and, as a general rule, the more severe the local reaction the quicker and the more satisfactory the diminution in the size of the glands. In very advanced cases, and more especially when subsequent histological examination showed that the case was one of Hodgkin's sarcoma, the serum injections were always unattended by any reaction. Further details of the cases under treatment are to be published later.

THE BLIND HELPING THE BLIND

THE new premises of the school for blind masseurs, at the National Institute for the Blind, Great Portland-street, W., were opened on July 4th, and the electrical clinic which is to be run in connexion with the school was officially inaugurated. The work of this clinic actually started in April last, since when 1300 treatments have been given. It is in charge of two medical men specialising in electrotherapy, an orthopædic surgeon, and a lady almoner, and treatments are carried out—free or at a nominal charge—by blind students under the personal supervision of a trained sister. The extra accommodation has been obtained by adding a floor to the building, where offices, a gymnasium, library, rest room, and bathroom are provided. At the present time 18 blind students (16 men and two women) are under instruction. The course includes massage and remedial exercises, in preparation for the examinations of the Chartered Society, and medical electricity in preparation for an examination success in which entitles the candidate to entry on the register of biophysical assistants kept by the Society of Apothecaries. The new department was opened by Miss Helen Keller, the blind and deaf American woman, now 52 years old, whose intellectual achievements have been of such high quality as to earn the honorary degree of LL.D. of the University of Glasgow.[4] At a luncheon given at the institute to mark the occasion, Sir Beachcroft Towse, V.C., presiding, Lady Muriel Paget referred to the assistance given by Dr. Keller to all those who struggled to help the deaf to reproduce natural speech with the correct intonation. Dr. Keller herself made a spontaneous informal speech which at least for those sitting near to her needed no interpretation; and her teacher and friend, Mrs. Sullivan Macy, demonstrated the methods by which she had been taught. When, in 1887, Miss Macy had first met Helen, she was a wilful and destructive little animal who kicked and scratched in a pitiful struggle to use and develop such faculties as she had left after the illness which had destroyed her sight and hearing at the age of 19 months. Her governess brought her literally into touch with her universe, at first by spelling words like "doll" into the palm of her hand while allowing her to feel the object spelt. Later Dr. Keller learnt by the sense of touch alone to imitate sounds, and ultimately—and this took 30 years—to speak intelligibly, and to "listen" with her hand spread across the face of the person she speaks with. Her thumb is over the larynx, her forefinger across the lips, her second finger touches the right nostril, while the rest of her hand presses gently on the cheek bones. The charm of the personality which has evolved, by sheer perseverance, shines through Dr. Keller's expressive face. In the optimism which evidently pervades her life she brings to the causes she has at heart a gift at least as valuable as the material contributions which her difficult speech inspires. This week she spoke for the blind, and at other times for the deaf. Dr. Keller has a deeper claim than any of her learned colleagues in the faculty of law to be allowed to plead successfully for the handicapped, and those who are privileged to see clearly and to hear distinctly can hardly fail to be moved to action by what it is no misnomer to call her eloquence.

[2] Med. Jour. of Australia, 1931, i., 397.
[3] Jour. Immunol., 1928, xv., 123; 1929, xvi., 27.
[4] See THE LANCET, July 2nd, p. 41.

DOM MANOEL

THE medical profession have particular reason to regret the death of King Manoel, for his association with their efforts during the war was close, and one which yielded practical results. His political position and dynastic alliances rendered it impossible for him to obtain a commission in our army at the outbreak of war, but his generous offers to assist the cause of the Allies, made through the Order of St. John and the British Red Cross, bore fine fruit. It was in connexion with the Orthopædic Hospital at Hammersmith that he did work which will be long remembered for its thoroughness. Obtaining permission from the D.G.A.M.S., Sir Alfred Keogh, to assist in organising the treatment of the numerous orthopædic cases returned to this country for treatment at scattered and general institutions, he came into close communication with Sir Robert Jones, and with him was largely responsible for the establishment of the great orthopædic centre at Hammersmith. Here he worked regularly and zealously, and on more than one occasion Sir Robert Jones has referred in public to the valuable service which he received from his royal assistant. Dom Manoel's sterling kindness and unaffected manner caused him, moreover, to be a very popular figure among the patients. His death from a sudden laryngeal affection occurred at the age of 42.

INDEX TO "THE LANCET," VOL. I., 1932

THE Index and Title-page to Vol. I., 1932, which was completed with the issue of June 25th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

SPECIAL ARTICLES

WHAT IS WRONG WITH THE MEDICAL CURRICULUM?

(A Series of Opinions Contributed by Request)

V

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IT seems to me that the curriculum now fails in some measure to produce quite the type of practitioner the nation needs and can best employ. I ask myself whether it enables him to handle the situations he meets with in practice so as to take the opportunity he and he alone has to educate his patients to understand and to apply without undue loss of time the bearing of our newer knowledge on the management and conduct of their lives—individually and from the family standpoint.

THE CHANGED TEACHING MATERIAL

A generation ago the medical student spent most of his period of hospital study, so far as medicine was concerned, in the wards going round with the physicians. X ray work was limited to the bones and joints; chest and abdominal work was not yet attempted. There was, for instance—to take one of the problems of those days—no light to be thrown in this way on the diagnosis between aneurysm of the aorta and mediastinal tumour. Nor was the Wassermann test available to point the way. The problem resolved itself into a long clinical consultation on the points favouring one or other diagnosis, sometimes to be left unsolved until the post-mortem verdict, sometimes solved wrongly. Abdominal surgery was in its infancy, and in the early days of gastro-enterostomy, unconfirmed by radiography, it was not unknown for a most successful operation to be performed on a patient who eventually turned out to have no knee-jerks. Typhoid fever was then common; text-books devoted many pages to its description, and it was often nursed in the ordinary medical wards, giving unlimited opportunity to students and nurses. Spleens grew under one's hand from day to day. A dicrotic pulse was easily and regularly demonstrated. The early signs of perforation in an almost comatose patient could be studied. The temperature chart at length gave away the diagnosis in a case in which a doubtful spleen—the Widal reaction was then hardly a routine—had kept it for long under discussion. Typhoid spine, nephro-typhoid, pneumo-typhoid, all gave chances of interesting talks. Tympanites was there to be seen, and the effects of errors of diet and the beneficial influence of some drugs on it could be shown. To-day, fortunately, typhoid is rare, but a valuable training ground for two professions has gone.

What about syphilis? The modern treatment of this disease as well as its serological diagnosis have taken away much of its clinical interest. Where are the swarms of secondary, and especially tertiary, eruptions which we used to see? Where are the difficult cases of diagnosis between psoriasis and syphilides; between syphilides, toxi-tuberculides, and tuberculoses of the skin? What would Jonathan Hutchinson do now for material were he still running the Polyclinic? Here too the "aids" have opened up new chapters. Blood Wassermann tests in atypical medical illnesses are revealing symptom-complexes which in the old days we failed to recognise as specific in origin.

Urine examinations were invariably made by the student-clerk superintended by the house physician; even the sister was not allowed to interfere, save to see that every morning the fresh specimen was put up by the bedside. To look for casts was the rule, and they had to be shown to the chief, who assessed them, verifying their variety. To-day the tendency is for the "aids" to come in too soon, and work that is essential to develop the clinical instinct is relegated to others.

The laboratory work of those days; what was it? Bacteriology was in its infancy, with the Widal test and diphtheria diagnosis just begun. Blood counts were made on the spot by the resident, who taught his senior clerks to do them when they were keen. Some students never learnt to do a blood count at all, and I have known residents in provincial hospitals of (say) 50 beds who could not do one. But all could wash out a drunk's stomach, and apply the faradic current. Then, as now, there was nothing so teaching as a resident job, though the Edinburgh dispensary system had its points. If a man had not been a house physician he never became a clinician in any high sense, however high his qualifications might be.

BLUNTING THE CLINICAL INSTINCT

Modern aids to diagnosis have had a lot to do with blunting the clinical instinct. The student feels that the laboratory or the X ray report will settle, if not much more quickly, at least with much greater certainty, the point under discussion, than will time spent in prolonged clinical examination. He does not worry about acquiring a knowledge of the clinical details which enabled his forebears to reach a just conclusion in the absence of such aids. In those days the considered opinion immediately following on an exhaustive clinical examination mattered. Nowadays it often does not. It is a question of collecting reports and fitting them in to form a view on diagnosis and treatment—a decision that could be reached by a general manager of ripe experience in an office, without reference to the examination of the patient. From the teacher's point of view the correlation and interpretation of results is just as important in relation to prognosis and treatment as it is in relation to diagnosis. But students and recently qualified men often have great difficulty in grasping the essential features of it.

For the student who intends to enter general practice two other departments need further attention than they get in most hospitals to-day. One is dietetics. Here our knowledge is advancing rapidly, but how difficult it is in most schools for the student to obtain that information on foods and diets of which he ought to make such full use in practice. True, dietitians are being appointed in some hospitals, but the linking up of their knowledge with that of a physician skilled in dietetics for the benefit of the average student is not yet accomplished in most schools. Small wonder that the unlicensed practitioner profits by this fact. Similarly with pharmacology and therapeutics. In the old days the hospital ward offered a basis for this teaching in the hands of the right type of physician, who may have done some pharmacological research as a hobby. Nowadays teaching is mainly in the hands of the full-time researcher, who lays the emphasis on pharmacology, and from want of practical knowledge of the management and treatment of patients is apt to scamp the

therapeutics. He may advise doses which the student, when he comes to use them in his practice, finds to be insufficient to gain any real effect from the drug; he certainly leaves out of account those personal differences and idiosyncrasies of patients, attention to which makes all the difference between success and unsuccess in the use of drugs. This was one of the departments in the old days in which, under the apprenticeship system, knowledge was insensibly acquired, and therefore never forgotten. The lesson included the study of constitutions, of idiosyncrasies, of racial differences, of the personal factor, and the synergic action of drugs; it was learned not so much from the book as from nature, and the effect of the drug on the whole organism, not upon one tissue taken alone, was seen—and the two are often different. In the course of this study of the effect of treatment on cases the student learnt how to take a "history"—that crux of the present-day student who, not seeing the bearing which the occupation, habits, and psychology of a patient may have on the management of the case, cannot be prevailed upon to take the necessary trouble. He used to learn how to comfort and relieve patients in distressed states, such, for example, as tracheitis, which only consulting-room and bedside contact will ever teach. So, only, can he learn that the body presents many problems to which sections in text-books are not allotted.

WORKING HOURS

This brings me to ask if the hours available per week for teaching are as many as they used to be. In many of the provincial hospitals, and probably in the London ones as well, there was, a generation ago, little approach to the real intercourse of residential university life. The union system was little developed. Societies, if they existed at all, took little time, and many men gave the whole of their time, with the exception of Saturday afternoons, to the grind of ward and lecture-room work. I do not underrate the effect of the present system on the general mental outlook but, while everyone is looking for corners in which to squeeze more and more classes, it must be remembered that the present student, not having known the "bad old" system, cannot visualise it. Experience in running societies which a union gives has great value in teaching a knowledge of human nature which, like that learnt in conversations at the bedside, has its repercussions when one comes to treat folk. Few, I fear, of recently qualified men possess intuitively or have gained the aptitude in handling and managing people and things, which will make them the right kind of person to be medical heads of the many institutions growing up. If time in the wards is to be further curtailed, matters must grow worse from the point of view of intuition. At present such curtailment as takes place is the student's own fault—he cuts short his talks with and examination of patients for spoon-feeding at grinds and classes. If this must be, then we must insist on a full year of hospital residence after qualifying. I wish, however, we could persuade the student that this sort of knowledge is even of value in examinations, and would be well acquired to some extent quite early in his course.

SYSTEMATIC LECTURES

Occasionally a lecturer is able by his experience and personality so to expound a subject as to give lasting benefit of a kind which no text-book can ever give. No rule should remove his lectures from the curriculum. But if a lecturer is able only to give what may be called "potted Osler," or if he is inaudible to a large class, it should be possible to get "signed up" in other ways. I would allow ward classes or attendances at out-patient teaching to count for a like number of systematic lectures. It is increasingly difficult to obtain a systematic lecturer whose interests and experience make him an acceptable lecturer in the whole range of medicine while, owing to the growth of knowledge, each year it is harder for him to cover the allotted ground in the allotted time.

To put the thing in a nutshell: what is wanted is more individual and less class tuition, as well as a greater (or one might say earlier) realisation by the student of the benefits of individual observation of, and contact with, patients. He seems, as ever, to love spoon-feeding and will attend classes morning, noon, and night. What he will not do—because of the call of so many fixed classes—is to spend time going round the wards with someone who will keep on grinding in the elements, *de die in diem*, until the pupil can appreciate the cases as clinical entities, and see how the various diagnostic "aids" are drawn together and guide the physician not only to correct diagnosis but to sound views on prognosis and individual treatment. This teaching is often best given by a junior, since so many of the honorary staff of hospitals specialise in one disease or group of diseases and tend to depart more and more from fundamentals in their teaching, which becomes ever more suited for the honours student or post-graduate. The man who will do this individual teaching of two or three at the bedside is a rara avis nowadays. If only the student will demand individual teaching he will get it again, and the position will be saved. It is not easy for even a staff physician to indicate to the junior student clearly and intelligibly the steps by which his judgment is formed—the means differ so vastly from what they were a generation ago—but it is no use trying to give this sort of teaching to a student who has no knowledge of the fundamentals.

EDUCATION FOR PRACTICE

I have wondered increasingly, as the curriculum has become more and more crowded, if it would not be possible to ease the position by dividing students somewhere in the middle of their course into two classes of general and special candidates. I would have them all brought up to a high standard, but under such a subdivision time would be found for the intensive work which the special candidates would seek, that time being occupied by the general candidates in acquiring a fuller knowledge of the fundamentals of general work. I feel that in the consideration of medical courses by university bodies there is at times a belittling of the importance of preparing men for general practice, the interest being taken mainly in the outstanding man who is likely to become a brilliant researcher. The answer usually supplied, when certain of the defects are brought forward, is that post-graduate education is devised to meet the situation, the special researcher, being brought to the same level in fundamentals, qualifying therein, and proceeding later to develop his bent. This means an expenditure of time and money which must hamper some of the best men. Such a subdivision as I visualise would not imply a "pass" and an "honours" standard; it would mean that in the later stages of the curriculum those who did not intend to enter general practice would be better prepared for intensive or special work, while those who did intend to pursue general practice would have more time at their disposal, to be filled up by their clinical teachers, in which to acquire that familiarity with fundamentals the lack of which is now so rightly deplored. But against the suggestion of an honours school must be set the undoubted

fact that many of the most valued consultants and teachers of the present day did not shine as students. I am of opinion that residence in hospital should be a compulsory practice, though the provision of a hostel for senior students within or adjacent to the precincts of the hospital may go far to fill this gap in the curriculum.

There are, it seems, certain upbringings which help the right type of student to develop the instinct founded on a knowledge of human nature. One is a doctor's house; the environment of the clergyman or the pharmacist may serve at times, but is not so potent as the medical one. On occasion a student may earn some good lessons from a long and trying illness, for only those who have suffered a rough nurse at work can ever know what patients have to endure. They can put their fingers on points in case management which the tyro will miss. Whereas in the old days there were few openings for consultants and the choice lay largely between general or institutional practice, nowadays the avenues are legion and if the new graduate is seeking an academic life or public service it may be questioned whether registration with compulsory residence preceding it should be essential for him. Formerly we were training for one end; now for how many and how different. Is it possible to divert the stream in some way, and to separate those who wish to practise from those who do not? I see many objections to it. But it might be a way out of difficulties and overcrowding of the curriculum which are becoming well-nigh intolerable to teachers as well as taught.

THE GLASGOW CLINIC FOR THE CERTIFICATION OF THE BLIND

THE CAUSES OF BLINDNESS IN 1460 CASES

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IN Glasgow, prior to 1925, candidates for admission to the blind register were only in exceptional circumstances certified by an ophthalmic surgeon. In that year Dr. Freeland Fergus made arrangements whereby the majority of persons seeking to be regarded as blind could be examined by an eye specialist. A year later, on the suggestion of Dr. Freeland Fergus and Dr. A. K. Chalmers, formerly medical officer of health for Glasgow, a special survey was made of the adult blind population in Glasgow, to ascertain something of the causes of blindness and of the nature of the problem of the blind in general. The report[1] describing the results of the investigation contained a recommendation that all persons seeking to be enrolled on the register of the blind should be examined by a board of ophthalmic surgeons, and a certifying clinic on these lines was established in August, 1929, by the Joint Committee for the South-West of Scotland for the Administration of the Blind Persons Act, 1920. Shortly after the opening of the clinic a descriptive note was published by Dr. J. L. Halliday.[2]

[1] Reports on Blindness in Glasgow, published by the Joint Committee for the South-West of Scotland for the Administration of the Blind Persons Act, 1920.

[2] Brit. Med. Jour., 1930, i., Supplement, p. 70.

The clinic has been in constant operation since 1929.

The Glasgow certifying clinic is a regional clinic administered by the Joint Committee for the Blind (South-West of Scotland), and is under the control of the medical officer of health for Glasgow, who is medical adviser to the Joint Committee. The clinic which, when it was opened, was probably the first of its kind, has attracted some attention, and it may be stated that it has been adopted as a model on which similar regional clinics have been established. The region served is Glasgow and the South-West of Scotland, which contains a population of 2,700,000 of whom about 4200 are on the register of blind persons. To undertake the work the arrangements made at the beginning have normally been found adequate—namely, two sessions per week at each of which about twelve cases are examined. The examiners are four ophthalmic surgeons who work in pairs, each pair constituting a board; every applicant is examined by two members of a board who conjointly sign the medical certificate. The four examiners, who have been on the staff since the institution of the clinic, are Drs. A. L. McMillan, H. Walker, J. A. Mortimer, and J. Marshall, and it is on their work that the results contained in this paper are based. Experience has shown that the board system is invaluable, especially in a certain type of case to be noted later. The clinic, it is to be observed, is purely a certifying unit; although in many cases treatment is recommended, no treatment except prescribing for glasses is carried out.

Source of Candidates

Figures for the source of candidates are available only for 1931. In that year 246 applicants for blind pensions were examined, of whom 109 were found blind. In Glasgow the decision in these cases is transmitted to the pensions' authorities by the Outdoor Mission to the Blind, a voluntary agency, which is supplied with the necessary information from the clinic.

In 1931 also there were examined at the request of public assistance committees 252 cases, of which 195 were considered blind. Three of the authorities represented on the Joint Committee for the Blind have since 1930 decided to augment the financial relief granted to their necessitous blind on condition that blindness was certified at the clinic. It must be observed that of those public assistance applicants certified blind no previous knowledge existed, showing that the old registers of blind persons were by no means complete. This decision of public assistance committees has involved extra work, requiring on two occasions the holding of additional sessions.

A regular source of work is derived from applications for admission to technical training at the Royal Glasgow Asylum for the Blind. In 1931 74 candidates for training were reviewed, of whom 30 were found blind. As the result of recommendations contained in a Joint Memorandum on Medical Certification and Standard of Blindness of the Department of Health for Scotland and the Scottish Education Department of October, 1931, all candidates for training are now examined at the clinic; hitherto candidates residing outside Glasgow were admitted to training on the certificate of the school medical officer, or ophthalmic surgeon, appointed by the education committee, and this certificate was scrutinised on behalf of the Joint Committee for the Blind by its medical adviser.

The Outdoor Mission to the Blind request a fairly large number of cases to be examined. Persons who think themselves blind may apply at the office of the Mission, or the home teachers of the Mission may learn of cases in the course of their work. Through this channel there were examined in 1931 166 cases, of whom 91 were discovered to be blind. The Outdoor Mission also controls the granting of free wireless licences and sets, which are given only to persons on the blind register.

In Glasgow the Transport Committee grants free travelling facilities to the blind who are certified at the clinic. In 1931, as the result of making application for this privilege, 64 cases were examined, of whom 45 were certified blind.

The clinic has not so far been a certifying unit for all purposes in connexion with the Blind

Persons Act. The important omission in this respect is the certification of blind children of school age. Under the Act education authorities are responsible for the education and maintenance of these children. The Joint Memorandum on Medical Certification and Standard of Blindness, to which reference has previously been made, strongly recommended education committees to arrange for the certification of all blind school-children at a certifying clinic before admission to a blind class or school is approved. In Glasgow arrangements for this are now being made, and when completed the clinic can then be regarded as a certifying unit for all purposes.

Home Visits.—Applicants unable to travel are examined at their own home. From the opening of the clinic in August, 1929, until the end of 1931, 249 cases have been examined, of which number a high percentage (86 per cent.) was discovered to be blind.

Standard of Blindness and Medical Certification

The standard of blindness, which has been adopted in the clinic, has followed the lines laid down in the report, dated July 21st, 1915, of the Ophthalmological Section of the Royal Society of Medicine, and recently described in the Joint Memorandum on Medical Certification and Standard of Blindness of the Department of Health for Scotland and the Scottish Education Department. Experience has shown that the most difficult type of case in which to come to a decision is the candidate who will not admit to being able to see as much as is anticipated from objective examination. It is in this type of case that the board system of examination by two surgeons has been found particularly valuable. It may be added also that the same class of case has demonstrated the essential need of appointing ophthalmologists of experience—specialists who can from their objective examination form a fairly accurate opinion on the degree of visual acuity that can reasonably be expected to be present.

Collection and Analysis of Data

Careful attention has been paid to this part of the work, since obviously the opportunities presented for collecting data on the causes of blindness are unique. The International Association for the Prevention of Blindness [3] has recommended that further statistics be obtained on the causes of blindness. The methods which have been evolved at the Glasgow clinic will be described, for it is considered that they might form a basis on which could be founded a system of collecting statistics on a national scale. Within the course of a few years, information concerning some thousands of cases will have been collected; to deal with such a large mass of data a mechanical system of analysis and tabulation, such as the "Hollerith" is almost indispensable.

In the Glasgow Public Health Department, the "Hollerith" system has been in operation for five years for routine departmental purposes, as well as for special inquiries. In addition to rapid tabulation and analysis, the system readily permits of correlation of one factor with any other. For example, a cause of blindness, such as syphilis, can be correlated with the ophthalmic conditions found on examination, or the cause of blindness in relation to occupation can be extracted. Since an essential feature of mechanical systems is the reduction of all data to numerical codes, it is necessary that every fact be classified as accurately as possible. Factors such as age, sex, place of birth, age of onset of eye trouble, age of onset of blindness, &c., can be easily coded, but when we come to causes of blindness it is necessary to have prepared a comprehensive list of causes in accordance with which each case of blindness can be classified. In "conditions" or "eye defects found" on examination the difficulties in fixing a satisfactory code are great, but as the result of a preliminary analysis of 1500 cases it is believed that a simple and satisfactory code has been evolved. In short, if a mechanical system, such as the "Hollerith" is to be employed, the examiner must set down his findings on the medical case sheet in such a fashion that they can be easily coded and transcribed on to the "Hollerith" card.

[3] Brit. Jour. Ophthalmol., 1932, xvi., 39.

THE MEDICAL CERTIFICATE FORM

It will be realised that the form of medical certificate must be drawn up to show opposite most of the questions a list of all the possible answers, that which is appropriate in each individual case being indicated by the examiner.

The following are the various factors incorporated in the form, which it is thought must be included if a statistical inquiry into the causes of blindness is to be made:—

(1) Age of applicant. (2) Year of birth. (3) Residence. (4) Birthplace. (5) Age at which disease causing blindness developed. (6) Year of onset of disease, &c. (7) Age at which blindness appeared and year of onset of blindness.* (8) Previous institutional treatment. This code will be given in full as an illustration of the methods. As well as showing the variety of specialist treatment it reveals also the result.

0. Not known.
1. None.
2. Medical, successful.
3. Medical, failed.
4. Medical, incomplete.
5. Surgical, successful.
6. Surgical, failed.
7. Surgical, incomplete.

(9) Family history. (10) Syphilis. The code here shows the result of serological tests and previous treatment; it also is a good example of the methods of coding:—

0. Not known.
1. W.R. positive—injection treatment.
2. W.R. positive—other treatment.
3. W.R. positive—no treatment.
4. W.R. negative — injection treatment.
5. W.R. negative—other treatment.
6. No treatment.

(11) Treatment recommended and opinion on question, "Would treatment remove from blind category?" (12) Visual acuity and field of vision. (13) Causes of blindness.

CAUSES OF BLINDNESS

The list of causes of blindness used is that adopted in the medical certificate recommended by the Department of Health. The categories, while adequately specific to give an accurate picture of the ætiology, are not so detailed as to lead to misinterpretation. The list of causes is printed in duplicate, one for each eye. A provision is made for recording the principal and minor causes of blindness. This provision is useful, for instance, where syphilis or myopia are associated with injury; while such cases are not common the scope of the work would be incomplete if they were neglected. The list of causes of blindness has been drawn up on the basis of prevention. Group I. consists of congenital and undetermined causes, which are in the present state of knowledge not preventable. In this group are included myopia, glaucoma, and cataract, diseases for which no definite ætiology has yet been established; it is, however, considered more advisable to include them in this category as otherwise they would be classified according to individual views on causation held by

* *Note.*—The object in taking the year of birth, year of onset of condition causing blindness, and year of blindness is to provide data from which can be obtained an historical view of the behaviour of blindness over a long period of years.

each examiner. The causes are divided into six groups as follows: (*a*) congenital and undetermined; (*b*) infectious and toxic; (*c*) traumatic and chemical; (*d*) systemic diseases; (*e*) not ascertainable definitely; and (*f*) no defect. The full list of causes will be given later in this paper, together with results of analysis of all cases certified blind.

EYE DEFECTS FOUND

It is obviously necessary that, in an inquiry into the causes of blindness, ocular defects found at examination should be recorded. As previously mentioned, from an analysis of the first 1500 blind cases what is believed to be a fairly satisfactory code of eye defects has been evolved. The code is a three-figure one, the essential feature being that the first two figures represent the principal eye defect and the last figure, or unit figure, stands for the complication or sequel. The first few items of the code, which consists of 33 categories, are:—

00. Congenital anomalies.
01. Albinism.
02. Wounds of the eyeball.
Inflammatory disease of—
03. Conjunctiva.
04. Lids and lacrymal sac.
05. Sclera.
06. Cornea, ulcerative.
07. Cornea, interstitial.

The single-figure code designed to record the complication or sequel, which is more or less arranged anatomically, is:—

0. No complication.
1. Corneal opacity or staphyloma.
2. Occlusio, seclusio.
3. Secondary cataract.
4. Detachment of the retina.
5. Choroido-retinal disease.
6. Optic nerve atrophy.
7. Anophthalmos.
8. Secondary glaucoma.
9. Others, including conjunctivitis and blepharitis.

According to the code a case of choroido-retinal disease associated with interstitial keratitis will be returned as 075. The first two numbers 07 are the code numbers for interstitial keratitis, while 5 in the code of complications represents choroido-retinal disease.

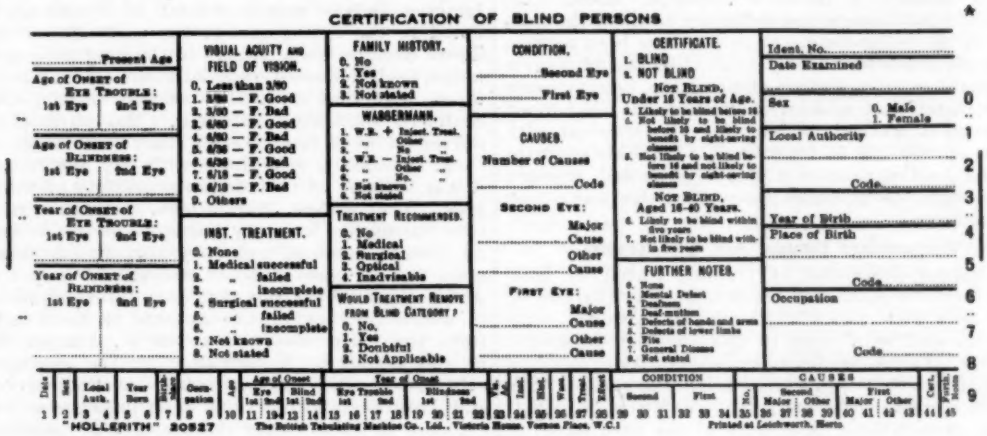
In indicating on a medical sheet the appropriate category for the cause of blindness and for the eye defect found, it is important to draw attention to the procedure adopted by the ophthalmic surgeon. He is invariably presented with the end-result of a pathological process. This end-result may be, and frequently is, the outcome of not one but several distinct conditions. In forming an opinion on the ætiology of the case, he is guided not only by the nature of the lesion itself but by other factors such as the history, the presence of changes in other structures of the same eye, and the findings in the other eye; by doing so, as a result of his knowledge and experience, he is enabled to make a fairly accurate concept of the clinical conditions which preceded the end-result, so that although the title "eye defects found" is used, it is not an objective phenomenon alone which is put into this category, but also the clinical process, which is the precursor of the terminal stage. For example, anophthalmos is not a diagnosis in a case where the eye has been removed after glaucoma; such a case must be described as glaucoma —anophthalmos. Care in this respect is even more necessary in cases of cataract where the diagnosis must distinguish primary cases from secondary, and in all secondary cases the responsible factor should be indicated. For example, a cataract second to detachment of the retina will be coded as detachment of the retina, secondary cataract. If this is not done and nothing more than the end-result is catalogued, then it cannot be too strongly urged that the data collected will have little or no value in an inquiry into the causes of blindness.

THE "HOLLERITH" CARD

The "Hollerith" card now in use (see Figure) owes its present form to improvements suggested by experience gained with the first card, by means of which more than 1500 cases were analysed. It is important to note that the case sheet has been drawn up in such a way that the information can be transferred to the card by a clerk.

Cases Certified Not Blind

It is imperative that these cases should be studied with the same care and attention paid to certified cases. From the point of view of preventive medicine it can be held that cases not yet blind will in some respects provide better material for research than certified cases, in that earlier stages in disease processes ultimately leading to blindness are available for examination. One of the most important points on which information will be provided by study of this data is the incidence of cases not certified blind, who are considered likely to become blind, but in whom it is thought treatment may prevent loss of vision. Another important question to which an


CERTIFICATION OF BLIND PERSONS
Present Age
Age of Onset of Eye Trouble: 1st Eye 2nd Eye
Age of Onset of Blindness: 1st Eye 2nd Eye
Year of Onset of Eye Trouble: 1st Eye 2nd Eye
Year of Onset of Blindness: 1st Eye 2nd Eye
VISUAL ACUITY and FIELD OF VISION.
0. Less than 3/60
1. 3/60 — F. Good
2. 3/60 — F. Bad
3. 6/60 — F. Good
4. 6/60 — F. Bad
5. 6/36 — F. Good
6. 6/36 — F. Bad
7. 6/18 — F. Good
8. 6/18 — F. Bad
9. Others
INST. TREATMENT.
0. None
1. Medical successful
2. " failed
3. " incomplete
4. Surgical successful
5. " failed
6. " incomplete
7. Not known
8. Not stated
FAMILY HISTORY.
0. No
1. Yes
9. Not known
8. Not stated
WASSERMANN.
1. W.R. + Inject. Treat.
2. " Other "
3. " No "
4. W.R. — Inject. Treat.
5. " Other "
6. " No "
7. Not known
8. Not stated
TREATMENT RECOMMENDED.
0. No
1. Medical
2. Surgical
3. Optical
4. Inadvisable
WOULD TREATMENT REMOVE FROM BLIND CATEGORY?
0. No.
1. Yes
2. Doubtful
3. Not Applicable
CONDITION.
Second Eye
First Eye
CAUSES.
Number of Causes
Code
SECOND EYE:
Major Cause
Other Cause
FIRST EYE:
Major Cause
Other Cause
CERTIFICATE.
1. BLIND
2. NOT BLIND
NOT BLIND, Under 16 Years of Age.
3. Likely to be blind before 16
5. Not likely to be blind before 16 and likely to benefit by sight-saving classes
8. Not likely to be blind before 16 and not likely to benefit by sight-saving classes
NOT BLIND, Aged 16–60 Years.
6. Likely to be blind within five years
7. Not likely to be blind within five years
FURTHER NOTES.
0. None
1. Mental Defect
2. Deafness
3. Deaf-mutism
4. Defects of hands and arms
5. Defects of lower limbs
6. Fits
7. General Disease
9. Not stated
Ident. No.
Date Examined
Sex 0. Male 1. Female
Local Authority
Code
Year of Birth
Place of Birth
Code
Occupation
Code
Date | Ref | Local Auth. | Year Born | Birth Month | Occupation | Age | Age of Onset: Eye 1st 2nd | Blind 1st 2nd | Year of Onset: Eye Trouble 1st 2nd | Blindness 1st 2nd | Vis. | Inst. | Wass. | Treat. | Effect | CONDITION: Second | First | No. | CAUSES: Second Major | Other | First Major | Other | Cert. Fourth Month
"HOLLERITH" 20527
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answer should become available is, "What steps are taken by candidates before examination at the clinic to prevent or postpone the onset of blindness?" It is in the sphere, however, of more purely ophthalmological work that the investigation of cases not blind will probably prove most fruitful. To take but one example—among cases who have lost an eye from injury, what are the causes of defective sight in the remaining eye? Is myopia or any other disease responsible for increased susceptibility to eye injuries?

(To be concluded.)

MEDICINE AND THE LAW

A Profitable Infirmity

SUCH books as those of Sir John Collie on fraudulent claims and malingering are sometimes criticised as presenting too dark a picture of human nature. A case at the Old Bailey on June 29th shows the need of vigilance. Ernest Page, aged 51, described as a coach-builder, pleaded guilty to the charge of having attempted to obtain by false pretences £127 10*s.* from one insurance company and £6 8*s.* 6*d.* from another. Ten years ago, it seems, Page discovered that he had a congenital infirmity similar to a broken collar-bone. According to the police statement at the Old Bailey he has profitably exploited it. Up to 1928 he had made 20 claims on insurance companies: one claim was rejected, the rest were paid; the total of his receipts is reported to have been £2268. His imposture was then detected and he was sentenced to 12 months' imprisonment in the second division. This year he resumed operations and nearly obtained the sums in respect of which he was charged. Thanks, however, to a fortunate communication between two insurance companies, his bogus claim was detected in time. The case suggests the need for such companies to keep a black list, and the desirability of pooling all material information as to fraudulent claims. In recounting Page's history a detective-inspector stated that medical practitioners had definitely certified the fracture of the collar-bone. Page has now been sent to penal servitude for three years. If he should resume his troublesome imposture after release, he may cause us to regret that modern civilisation has abandoned the ancient method of branding the criminal with letters appropriate to his offence. Indelible stigmata applied to the skin over Page's supposed fracture would warn the innocent doctor that this was a case for suspicion.

Dangerous Drugs Act Conviction

A garage proprietor at Oxford, stated to have been formerly a chemist's assistant, was charged on June 30th with unlawfully supplying a woman with morphia and with being in unauthorised possession of drugs. The police discovered a quantity of morphia pills and chlorodyne in a tin trunk in the garage. The woman named in the charge gave evidence on behalf of the prosecution. The facts of the case have no special interest, but we may note her statement that the accused, who naturally pledged her to secrecy, said "if it was known, the police would give me six months quicker than a stroke of lightning." According to her further evidence he added that there were people who would give any amount of money for what he had in his trunk, and that "doctors who had been struck off the roll" would give him £20 for small quantities. The accused was fined £10 and ordered to pay £13 9*s.* 6*d.* costs, or two months' imprisonment, for being in unauthorised possession of the drugs. The charge of unlawfully supplying was dismissed.

Lunacy Certification in Northern Ireland

The Mental Treatment Act (Northern Ireland), 1932, which received the Royal Assent last month, contains a provision (Section 67) corresponding to Section 16 of the Mental Treatment Act passed at Westminster two years ago. Anyone who in future presents a petition for a reception order in Northern Ireland, or signs or carries out any such order or any report, application, recommendation, or certificate under the Lunacy (Ireland) Acts or the new Act of 1932, is not to be liable to any civil or criminal proceedings unless he has acted in bad faith or without reasonable care. As in the English precedent, no such proceedings are to be taken against him without leave of the High Court; the Court is not to give leave unless satisfied that there is substantial ground for the contention that the defendant has acted in bad faith or without reasonable care. Thus in Northern Ireland as in England the onus of proof will be on the plaintiff. The person whom it is sought to make the defendant is to have notice of any application to the Court for leave to sue, and may be heard on the application.

The rest of the new Act contains provisions for temporary and voluntary treatment on the lines of the English statute: the expressions "lunatic," "lunatic asylum," "pauper lunatic," &c., are to be discontinued also as in England.

GERMAN WORK ON PULMONARY ASBESTOSIS

ALTHOUGH physicians in Germany before the war noted that there was something unusual in pneumoconiosis as seen in the asbestos worker (Fahr[1]), no extensive inquiries were made there until quite recently. Last year, however, Buttner-Wobst and Trillitzsch[2] described eight cases from two factories in the neighbourhood of Dresden. They noted in the radiograms in the early stages of the illness circumscribed patches in the lung the size of a millet seed or linseed, especially obvious in the lower lobes, and that with the progress of the disease confluent shadowing appeared. The physical signs developed at a later stage; they were those of a basal bronchitis, sometimes with dry pleurisy, and it was difficult to exclude the possibility of tuberculosis. The writers, like others, pointed out that tuberculous foci are very liable to be overlooked in all pneumoconioses, and they also found that the more serious cases did not necessarily tend to get worse after removal from their harmful surroundings—in which their experience appears to have differed from the early observations of W. Burton Wood in this country. Examination of the sputum for asbestosis bodies was not made, for Buttner-Wobst and Trillitzsch did not think their presence any more evidence of disease than the presence of coal-dust in the sputum of coal-miners is proof of anthracosis. They hold that asbestosis owes its individual characteristics almost entirely to the chemical composition of asbestos and to the shape of the dust particles, and they raise the question whether the different types of asbestos may show different harmful effects, as in silicosis.

Shortly afterwards Krüger, Rostoski, and Saupe[3] also recorded a collection of cases seen in and around Dresden. Their series consisted of 18 males and

34 females, of whom 30 showed definite changes in the lungs. The longest exposure to the dust was 31 years, in a worker aged 60. The commonest initial complaint was dyspnœa, and there was cough in 43 of the cases; night-sweats were present in 12, and rheumatic pains, headaches, and general nervous symptoms in 15. Further, conjunctivitis was noted in 16 cases—a symptom which has not attracted much attention in this country, though asbestos fibres in lacrymal secretion have been described by Burton Wood and S. R. Gloyne. Sputum was obtained in 28 cases and in eight of them contained asbestosis bodies. Among other new observations on the blood and circulation it was found that there was a fall of hæmoglobin. The radiograms showed three stages: (1) an increase of the normal lung striation with the appearance of a fine not very clearly defined network; (2) a thicker network with delicate, sharply defined opaque spots; (3) an intensification of this network to form a shadowy veil covering the lung. The signs are first seen and are most marked in the mid zone and lower lobe areas. The contour of the heart shadow becomes ill-defined in the second stage; the root shadows were not affected in this stage but show enlargement in the third stage. The statistical tables appear to indicate that moderately severe asbestosis takes some five years to develop, while none of the workers examined who had had ten years or more exposure was free from signs of the disease. The most advanced cases were found in the spinning section of the factories.

Beintker [4] records two cases with an account of post-mortem examinations from a factory concerned with the crushing, cleansing, and spinning of the asbestos and the manufacture of insulation materials in Münster. He believes that the morbid anatomy of the condition depends upon the distribution of the asbestos fibres in the lung tissue, and that the fibres which gain access to the body probably do not begin their development into asbestos bodies until they reach the tissues. The bodies are apparently the accumulation of the silica-containing material.

Gerbis and Ucko [5] record the examination of 33 asbestos workers in another German factory in Berlin. Nearly all the cases showed the usual symptoms—e.g., cough and sputum with dyspnœa, especially on exertion or in foggy weather; 16 complained of lack of appetite, 10 of loss of weight, 5 had pain in breathing, 5 had palpitation of the heart; others complained of faintness and of increasing pallor. Cough was present in 23 cases. The sputum was tenacious, scanty, generally mucoid, and occasionally mucopurulent. Previous history included pulmonary catarrh in four cases, pleurisy in two, and peritoneal tuberculosis in one case. In only one (a female) was there any family history of tuberculosis and the authors have been unable to trace any close connexion between asbestosis and tuberculosis. The clinical and X ray findings noted appear to correspond closely with those of Buttner-Wobst and Trillitzsch, and of Krüger, Rostoski, and Saupe. The authors noted that the severity of the disease did not appear to be dependent on the age of the worker, but rather on the number of years he had been in the factory and on the amount of asbestos dust inhaled, which varies considerably in different processes. Whenever a patient had been working for more than ten years, asbestosis could be demonstrated radiologically. Personal disposition appeared to play a part in the production of the changes. With regard to the asbestosis bodies, Gerbis and Ucko quote the views of Beintker [4] and Timmermans [6] to the effect that the bodies arise through the deposition, due to the solution of the asbestos, of a colloidal form of liberated silicic acid on the central core of the asbestos fibre. They regard the discrepancy between the clinical appearances and symptoms on the one hand, and the X ray picture on the other, as a characteristic peculiar to asbestosis. Even the most severe cases of asbestosis did not give as pronounced a radiological picture as that of silicosis; in fact, in the third stage of asbestosis the degree of shadowing present would have little clinical significance in silicosis. They believe that in asbestosis the silicic acid acts as a chemical irritant which leads to fibrosis. Connective tissue is regarded as particularly sensitive to the action of silicic acid, and it is suggested that when the silicates of the asbestos are dissolved in the lung tissue, silicic acid is liberated, is taken up by the connective tissue, and stimulates increased growth. Gerbis and Ucko give no support to the statement that asbestosis is formed on the soil of a tuberculous infection; indeed, this theory is contradicted by their observations. The fact that the patient suffering from asbestosis is more liable to pneumonia gives rise to a bad prognosis.

Finally, Timmermans [6] gives a short disquisition on the formation of the asbestos body. He thinks the two main types of body, the "handle-form" with a knob at both ends, and the "carrot-form" with one end tapering, are an indication of some difference in formation. He suggests that the shape of the asbestos body is conditioned to a large extent by the surrounding tissue, the handle-forms being produced in places where there is no movement, and carrot-forms where the tissue fluid is in motion.

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UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

MEDICAL BENEFITS TO EX-SOLDIERS

MORE than $450,000,000 a year could be saved by the federal government if present benefits to ex-soldiers who are not suffering from war disabilities were eliminated from the national budget. This is the conclusion of a report by its committee on public health relations, approved for publication by the Council of the New York Academy of Medicine. "The injustice and wastefulness is only fully realised," they add, "when one contemplates the improvement in the health of the people of the entire country which could eventually be obtained with a fraction of this colossal sum."

During and immediately after the war, Congress passed legislation providing for medical care and compensation for veterans (as our ex-soldiers are called) who had been sick or disabled as a result of war service. In the post-war years, however, there developed an ex-service men's lobby, fostered by the American Legion and the Veterans of Foreign Wars, which undertook to widen the scope of existing benefits and to seek others. They have been highly successful, for there is a large ex-soldier vote as well as a popular patriotic sentiment which Congressmen dare not

offend. Under these conditions supplementary legislation has been passed which has resulted, as the committee says, in "totally unfair distribution of benefits, scandalous but strictly legal misuse of appropriations, and almost unbelievable extravagance in the duplication of medical facilities throughout the country where first-class hospital accommodations are available for veterans as well as the general public." Thus a veteran who could prove, even six years after the war, that he had tuberculosis which disabled him as little as 10 per cent. is entitled to fifty dollars a month for the rest of his life, even though the disease is now arrested or does not in any way affect his present earning power. At the same time the widow of a soldier who was killed in the trenches, though she is supporting two children, receives only $46 a month.

It is very doubtful whether many of the benefits now given for supposed war diseases or injuries are in fact due, though they are legally due. This is because the decision as to whether the disability is caused by war service is made on lay evidence and does not depend upon expert medical judgment. The number of ex-soldiers receiving such benefit is still growing rapidly. In 1922 there were 174,000 beneficiaries; in 1930 the number was 299,000; in 1931, 313,000. The committee comments: "It is hardly conceivable that any disease would develop as late as 1931 due to war service which was concluded nearly 14 years ago."

Under the Emergency Officers' Act, compensation has been awarded for complete or partial disability to over 6900 officers. If the disability is assessed as 30 per cent., the officer receives two-thirds of his salary for the rest of his life. This allowance continues without any regard for his present earning capacity. For example, the special counsel for the Veterans' Bureau receives a salary of $9000 a year, and at the same time draws two-thirds of his pay as an officer in the late war, because he has bronchitis which he presumably developed during the war while on duty at Washington, D.C.

For purposes of the civil service, a veteran is presumed to be competent in virtue of his war service and to be especially competent if he has a disability. In a competitive examination for junior chemist a disabled veteran got a mark of 69 per cent. and would have failed if he had had no service record. Under the present ruling he went to the top of the list. His application was preferred above that of a man who made 97·5 per cent. in the examination. It may be easily imagined that the continuation of such a policy will eventually affect the efficiency of government services.

The American Legion is by no means satisfied with the present legislation, which is estimated to cost the country one hundred billion dollars by the time the last beneficiary shall have died. A Bill has just gone through the House of Representatives which if enacted will provide a pension for widows and orphans of ex-soldiers who died or die of any illness incurred in civilian life. The Legion programme includes a resolution that the time limit for marriage of a veteran be extended to July 3rd, 1941. If this part of the programme is successful it is highly probable that pensions will be paid to widows of these late marriages until well after the year 2000. The extension of present government hospital facilities as advocated by the Legion would add a burden to the taxpayers of over one hundred million dollars yearly.

PANEL AND CONTRACT PRACTICE

Ophthalmic Benefit

WHEREAS medical benefit under the National Health Insurance Act is administered by the insurance committee of the locality in which an insured person lives, and is one to which he is entitled under regulations so long as he is employed, ophthalmic benefit is entirely in the gift of his society. Some societies do not give this benefit, others allow it only to persons who have been members for a certain length of time. The benefit consists in expert examination of the eyes and treatment, and the provision of any necessary glasses or their repair. The persons who claim to be expert at this work are: (1) ophthalmic surgeons; (2) sight-testing opticians.

The position of approved societies in the matter was that whilst they realised that an ophthalmic surgeon was the only person who could deal with difficult cases, they held the sight-testing optician to be competent to deal with the great majority of simple refraction cases. The cost to the society being very much smaller, they thus sent their members, in the first instance, to sight-testing opticians, stating that the eyes required a special examination, largely, if not always, regardless of what the panel doctor advised on his certificate. The recommendation that examination of the eyes and prescriptions for glasses should be made by specially qualified medical practitioners has been made in no less than three Government reports, but the bulk of the general public have, until recently, had to obtain this examination and necessary glasses through sight-testing opticians; for unless they were prepared to go to hospital as out-patients, and perhaps wait for hours before seeing the ophthalmic surgeon, they could not obtain the opinion of specialists without paying fees which they could not afford.

The first step towards solving this difficulty was an arrangement, which is still working, made by a comparatively small number of ophthalmic surgeons who undertook to give members of approved societies an ophthalmic examination for £1 1*s.*, payable by the society. These specialists had to satisfy the ophthalmic committee of the British Medical Association that they were specially skilled in ophthalmology; but the scheme was not altogether satisfactory because societies could not afford to pay £1 1*s.* for each examination. The sight-testing optician then sought to obtain statutory registration which would entitle any registered optician to be considered capable of testing and correcting refractive errors. A departmental committee was set up to report on the matters, and an undertaking was given by the British Medical Association representatives to that committee, that within a reasonable time arrangements would be made to provide an ophthalmic medical service for that section of the population which is unable to afford specialist fees. This undertaking has been honoured in the establishment of the National Eye Service run by the National Ophthalmic Treatment Board (N.O.T.B.), with headquarters at 1, High-street, Marylebone, London, W. 1. The N.O.T.B. is thus the result of the coöperation of the chief ophthalmic surgeons in the British Medical Association with the Association of Dispensing Opticians. The scheme provides for an ophthalmic medical examination and the provision of glasses where necessary for any State-insured person, any dependants of State-insured persons, and for non-insured persons whose total family income does not exceed £250 per year. The

ophthalmic surgeon is paid 10*s.* 6*d.* per case, and the patient pays a minimum of 15*s.* if he is insured, the cost rising if other than white metal, non-rusting spectacles, rimmed or rimless eyeglasses are ordered.

Under the old regulation applying to additional benefit, the society made arrangements as to how its member was to take his benefit, and the patient often therefore had to be content with an examination by a sight-testing optician. New regulations have changed this; the society cannot now refuse a member's request to take his benefit through the N.O.T.B., and it has to pay towards the cost of this treatment not less than the minimum which would otherwise be paid. There has certainly been an undertaking given that a doctor will not write on his initial certificate that the benefit is to be taken through the N.O.T.B., but he is perfectly justified in persuading the patient verbally or in writing, other than on the certificate, to apply to his society for it. The scheme appears to be working very satisfactorily, especially in recent months. Cases dealt with by the Board in 1931 showed an increase of 74 per cent. over those of 1930, and during the first five months of 1932 show an increase of more than 90 per cent. over the corresponding period of 1931.

The N.O.T.B. scheme would undoubtedly be more popular if under it a doctor could send the patient direct to the ophthalmic surgeon of his choice. This is not at present possible owing to the various forms which have to be filled up (1) giving proof of authorisation of the society's benefit, (2) instructing the dispensing optician to carry out the work, and (3) giving proof of ophthalmic surgeon service—before he can be paid. All these forms have to be filled up as a result of the doctor's first certificate that the patient requires ophthalmic benefit. The present system actually protects ophthalmic surgeons from doing work for which there would be eventually no payment.

The country is now getting much better supplied with dispensing opticians who do no sight-testing, but there are still many places where they are lacking. This deficiency is likely to be remedied soon, but probably ophthalmic surgeons might help by giving some of their private work to these men, and thus encourage those who are really assisting the scheme and the ophthalmic surgeon by doing no sight-testing themselves. It is a great advance that practitioners are now able to be sure that panel patients requiring special examination of their eyes will be seen by a medical man specially qualified in this work, and that this is possible under the N.O.T.B. scheme at very reasonable cost.

PUBLIC HEALTH SERVICES

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH

THE following are 1931 statistics of three county boroughs and one metropolitan borough:—

Name of district and estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 live births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Plymouth .. (191,800)	16·5	14·7	1·01	1·61	3·6	2·1	67/30	24	2·6
Coventry .. (168,900)	14·8	10·0	0·94	1·14	1·6	1·9	58/34	16	6·0
Reading .. (97,300)	15·1	12·0	0·87	1·64	1·8	2·4	45/23	21	2·7
Poplar .. (156,300)	17·5	12·4	1·09	1·42	2·4	3·0	77/27	35	2·5

Registered stillbirths per 100 live births: Coventry 4·0, Reading 4·4, Poplar 3·3.

Plymouth

Dr. A. T. Nankivell reports progress in immunisation against diphtheria, 498 children were done at the maternity and child welfare centres and 734 at the infant schools. The parents have responded well and about 25 per cent. of the school entrants were immunised during the year. The appointment of an additional lady dentist and nurse has brought eight more schools under dental care and there are now only eleven for which no provision is made.

The opening of the extension to Swilly Hospital has given the city adequate accommodation for infectious diseases and the 20 cubicles have been an immense advantage. Didworthy Sanatorium, with its new block for girls, now provides 100 beds for early cases of tuberculosis in men, women, and children, but lacks an X ray plant. Nevertheless a few patients have received artificial pneumothorax treatment. When the alterations in progress at the old fever hospital at Mount Gold are completed, this will become the hospital-sanatorium for intermediate and advanced cases of tuberculosis, many of which are housed elsewhere at present; and it is hoped that the orthopædic hospital, now being erected on an adjacent site for 120 cripples, will be opened towards the end of 1932. The city hospital has already lost its poor-law stigma and reduced waiting-lists at other hospitals. An additional antenatal clinic has been established there. Dr. Nankivell again stresses the need for a modern healthy home for the nursing staff.

Venereal disease remains about the same as during the last two years. "Speaking generally," says Dr. Nankivell, "there is little or no syphilis, but a considerable amount of gonorrhœa, which shows no decline in its incidence."

Coventry

In these days of commercial depression it is cheering to read Dr. A. Massey's record of a prosperous and overflowing industrial city, with a death-rate of 10·0 and with modern hygienic factories, largely using electricity or gas for power purposes and so securing comparative freedom from atmospheric pollution. The young child mortality of Coventry was low, but the infant mortality-rate was only comparatively satisfactory, being swollen by a high neonatal figure. A table shows that these so-called neonatal causes gave rise to 79 deaths in 1931 and an annual average of 84 in the last decade. Maternal mortality in child-bearing has been up during the last two years—viz., 6·01 in 1931 and 7·03 in 1930, as compared with an average of 4·25 for the previous ten years.

Boundary extensions in 1890, 1899, and 1928, increased the area of Coventry from 1486 to 12,878 acres, and from April 1st, 1932, as the result of the 1931 extension, the area has been 19,186 acres, with a population of 182,000. This rapid growth has aggravated the housing problem and the shortage up to 1931 has been an obstacle to slum clearance. In April a rehousing site was obtained at Stoke Aldermoor and the first 100 houses are now in course of erection and will receive the tenants from the first two small clearance areas. Other housing work done during the year included the reconditioning of 794 unfit houses, mostly after discussion with the owners

and without the service of statutory notices; the demolition of about 80 houses of the slum type; and the demolition of 185 of the munition workers' hostels taken over from the Government, leaving 469 to be dealt with during the next few years. The municipal hospital has developed on general hospital lines in amicable coöperation with the voluntary hospital. Each will take acute cases and have a maternity department so as to ensure a satisfactory training for the nurses. A new nurses' home (81 bedrooms) was opened at the municipal hospital in April. When the new isolation hospital at Pinley (152 beds), a view of which appears as a frontispiece to the report, is completed about April, 1934, the voluntary hospital will take over the vacated isolation hospital buildings from the corporation. Official and voluntary agencies work in complementary fashion for maternity and child welfare. The cases attending the municipal antenatal clinic, conducted by Mr. S. A. Ballantyne, a gynæcological specialist, numbered 478, of whom 338 were booked for beds at the municipal or the voluntary hospital, 62 were sent by midwives, 6 were sent by medical men, and 72 "came of their own accord."

Continued coöperation between the health department and the local engineering employers' association and its welfare officers has enabled much health educational work to be carried out in the factories. To combat the accident menace in engineering shops, 21 Coventry firms have appointed safety officers. Dr. Massey includes in his report a note on the possible dangers to health from some of the processes used in the manufacture of motor-cars and cycles. Chromium plating and cellulose spraying may cause injurious fumes, and sandblasting or sandblowing may lead to the inhalation of silica dust, a danger which is lessened by the adoption of shotblasting as a substitute. The foundation-stone of the public abattoir was laid on June 18th, 1931, and completion is expected in September, 1932. The estimated cost, including site, is £100,975 and the site is the first considered when the subject was seriously discussed during the decade 1890–1900.

Reading

Dr. H. J. Milligan records an agreement between his council and the Royal Berkshire Hospital under which the hospital treats non-pulmonary and orthopædic cases and maintains an out-patient clinic to implement the provisions of the Mental Treatment Act, 1930. This clinic is intended to bring under supervision incipient mental disorders and will have the active coöperation of the superintendent of the mental hospital. Battle Hospital (ex-poor-law) is now in process of fitting itself into the medical service scheme. Practitioners are in direct touch with the medical superintendent for the admission of their patients. Though most of the work is still of the chronic type, acute cases are increasing and the Royal Berkshire Hospital has agreed to pay for the maintenance and treatment of their contributors who have to be transferred to Battle, which is well equipped for medicine, surgery, midwifery, and diseases of women. The policy of this municipal hospital is to make adequate provision for patients sent to it, without expensive and unnecessary duplication of services provided elsewhere.

Births assigned to Reading numbered 1477. Dellwood Maternity Home provided, as usual, for about one-sixth of the confinements in the borough and 353 new cases attended the antenatal clinic. Of the latter, 90 were referred to the dental clinic, of whom 45 accepted treatment. Dr. Milligan reports that the difficulty in securing early notification of tuberculosis and the examination of contacts still continues. The examination of milk samples for tubercle showed, as in former years, 10 per cent. infected. The Whitley estate is being developed rapidly, 280 new houses having been added during the year. Nevertheless the housing shortage continues and numerous cases of overcrowding are still reported. Three small clearance areas have been dealt with and a fourth awaits the confirmation of the Ministry. They are in a district which had a doubtful sanitary reputation in 1850 and involve about 100 houses considerably over 100 years old.

Poplar

Dr. W. Allan Young says the only rates which varied appreciably from the previous year were the birth-rate, which dropped by 1·6, and the infectious diseases notification rate, which fell from 24·4 to 18·9. There was a slight increase in pneumonia, and a substantial decrease in small-pox, diphtheria, and scarlet fever. Substantial progress was made during the year with two of the 14 clearance areas which are under consideration. Three inspectors have been appointed for systematic house-to-house inspection so as to complete a survey of the borough in three years. They report the nuisances they find and leave them to be dealt with by the district inspectors. Overcrowding cannot be dealt with except when families are rehoused by the L.C.C. or the borough council; 128 cases were so abated during the year. The families rehoused in 1931 numbered 876—viz., 847 by the L.C.C. and 29 by the Poplar council.

Maternity and child welfare is carried out in about one-third of the borough by the Royal College of St. Katharine and in two-thirds by the council. Attendances at both sets of clinics show an increase and a special effort has been made to deal with the "toddler." The rule is to visit the infant on the eleventh day after birth and to pay eight visits during the first year of life, six in the second, four in the third, three in the fourth, and one or two in the fifth year. The observation wards and consulting clinic at Wellington-road, conducted by Dr. H. St.H. Vertue, have been very useful in dealing with difficult babies, more especially in the restoration of breast-feeding and the getting of artificially-fed babies gradually on to a diet, which the mother can manage when it returns home. Of 47 babies admitted to the wards 37 were discharged quite well and six so improved that complete recovery at home was "morally certain." During the nine years 1914–1922 there were seven cases of impaired vision and one of total blindness from ophthalmia neonatorum in the borough; during the nine years 1923–1931 not a single case of impaired vision. The notifications in the earlier period were 483 and in the later 413. About 42 per cent. of the births took place in institutions, 19 per cent. in St. Andrews (L.C.C.), and 18 per cent. in the East End Maternity Hospital. About one-quarter of the domiciliary confinements were attended by doctors and the rest by midwives. There is increasing coöperation between the midwives and the antenatal clinics; and the antenatal consulting clinic established by the obstetrician at St. Andrew's Hospital has been appreciated both by private practitioners and medical officers of clinics.

The public analyst's report indicates a decline in adulteration during the last few years. A sample of strawberry jam "of the finest quality" was made from preserved pulp and contained sulphur dioxide, the manufacturer admitting that he made a better grade from fresh fruit. A product labelled "egg powder" was "found to be a coloured baking powder made from inferior ingredients containing a trace of arsenic and was deficient in available gas." Improved methods of dust collection by low loading freighters are at present under consideration.

In accordance with the L.G. Act, 1929, a survey of the public health services of the borough has been carried out by a medical officer of the Ministry. In July a favourable letter was received from the Ministry, especially noting the arrangements for dealing promptly with infectious disease, the scheme for supervising children up to the age of 5, and the arrangements for the maternity and child welfare scheme, including the alliance with St. Katharine's. The letter draws attention to three matters: (1) A new X ray apparatus is needed at the dispensary. (2) Better accommodation is needed at some of the centres, especially where they are used for antenatal clinics. (3) The tuberculosis register needs further

revision. The health committee's reply indicates that: (1) A new X ray apparatus will be considered when accommodation can be provided for it and that in the meantime a satisfactory arrangement has been made with St. Andrew's Hospital for the X raying of tuberculosis patients. (2) The centre specially mentioned is to be entirely rebuilt in the near future. (3) The register is being further revised.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JUNE 25th, 1932

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 30 (last week 25); scarlet fever, 1397; diphtheria, 695; enteric fever, 32; acute pneumonia (primary or influenzal), 808; puerperal fever, 43; puerperal pyrexia, 89; cerebro-spinal fever, 27; acute polio-myelitis, 4; acute polio-encephalitis, 2; encephalitis lethargica, 11; dysentery, 7; and ophthalmia neonatorum, 101. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on June 28th was as follows:—Small-pox, 54; scarlet fever, 1488; diphtheria, 1384; enteric fever, 16; measles, 1614; whooping-cough, 384; puerperal fever, 15 (plus 10 babies); encephalitis lethargica, 230; poliomyelitis, 3; "other diseases," 93; ophthalmia neonatorum, 14.

In our last issue the statement of cases in the Infectious Hospitals on June 21st was incomplete. It should have been stated that there were 44 cases of small-pox, 230 of encephalitis lethargica, 3 of poliomyelitis, and 14 of ophthalmia neonatorum.

Deaths.—In 117 great towns, including London, there were no deaths from small-pox, 2 (1) from enteric fever, 36 (15) from measles, 9 (5) from scarlet fever, 29 (13) from whooping-cough, 25 (7) from diphtheria, 34 (19) from diarrhœa and enteritis under two years, and 24 (2) from influenza. The figures in parentheses are those for London itself.

Twelve fatal cases of measles were recorded in Liverpool and 2 in Stoke-on-Trent. Two of the deaths from scarlet fever were in Manchester, and 7 of the deaths from diphtheria were in Liverpool. Manchester reported 3 deaths from influenza, while Liverpool and Sheffield reported 2 each. Of the fatal cases of whooping-cough, 2 were in Manchester and 2 in Sheffield. Diarrhœa and enteritis under two years accounted for 5 deaths in Liverpool, and 2 each in Bristol, Coventry, and West Bromwich.

The number of stillbirths notified during the week was 298 (corresponding to a rate of 42 per 1000 total births), including 47 in London.

CORRESPONDENCE

HÆMAGGLUTINATION IN UNDILUTED SERUM

To the Editor of THE LANCET

SIR,—The assignment of blood to its proper group for the purpose of blood transfusion lays a great responsibility upon the experimenter. In the course of our investigations we have become more and more convinced that the use of high-titre test-sera is imperative, as has been pointed out repeatedly in the current literature. It appeared however that this condition did not fulfil the requirements; test-sera may not have an inhibitory effect when used in low dilutions. On rare occasions inhibition occurred in undiluted or slightly diluted serum, but not in further dilutions. All sera were tested by employing the "slide method." This was preferred to Schiff's "tube method," because in Holland it is most frequently used. It therefore became of importance to control scrupulously the behaviour of test-sera when using this method.

In order to obtain comparable results, several sera were tested in successive dilutions against corpuscles of one person. This showed that different sera could be diluted to a different degree to cause a macroscopically just visible agglutination. If corpuscles of another person were added to the same sera, other dilution figures were found. This must be ascribed to the varying sensitiveness of the agglutinogens. The results, however, remained proportionally constant, showing that serum which agglutinated in the highest dilution the corpuscles of one person did the same against corpuscles of another person. From this it follows that standardisation of agglutinin or agglutinogen cannot yet be successfully attempted, since both factors vary. For the present we must be satisfied with the above-mentioned proportional results.

We have noticed, as already mentioned, that in a few sera distinct agglutination occurred in the higher dilutions only, whereas in undiluted as in slightly diluted serum agglutination was slight or absent. A protocol is attached. This shows that in hæmagglutination the same occurs as in bacterial agglutination—that is to say, what has been termed a prezone phenomenon. In the available literature no reference to this could be found, apart from an allusion by F. J. Holzer (*Klin. Woch.*, 1932, xi., 243). For this reason it seems to us desirable to publish our observations, the more so because in our opinion they indicate the need for test-sera not only to be of high titre but to be devoid of inhibitory properties.

Titration in Two Sera with Inhibitory Effect

Number.	Serum diluted to—										
	und.	½	¼	1/8	1/12	1/16	1/20	1/24	1/28	1/32	1/36
15 (A β serum)	−	−	±	+	++	++	++	++	+	+	+
10 (B α serum)	−	±	+	++	++	++	+	−	−	−	−

Agglutination: − absent; ± very slight; + slight; ++ strong.

We are, Sir, yours faithfully,

A. PONDMAN,
A. C. BRANDWIJK.

State Serological Institute, Utrecht, Holland, June 24th, 1932.

BRONCHOSCOPIC APPARATUS

To the Editor of THE LANCET

SIR,—We agree with Mr. Popper, whose letter was published in your last issue, that there is nothing original in the idea of using an optical system in the examination of any of the orifices of the body; it is the application of this idea for a specific purpose (in this case examination of the bronchi) which is new, in the sense that it has not been previously in general use. We started our bronchoscopic clinic in December, 1930, and in a few weeks came to the conclusion that the instruments we were using were inadequate for our purpose; it appears that Mr. Popper commenced his researches about the same time. Owing presumably to the fact that the first obvious use to which the bronchoscope was put was in the extraction of foreign bodies, the instrument became a part of the armamentarium of the laryngologist; but the larynx is only the portal to the bronchi, which, as part of the lungs, are certainly in the domain of the chest physician.

For many years the laryngologists have continued to use the old instrument without any material improvement, presumably because it has sufficed for their purpose—mainly the extraction of foreign bodies with an occasional medical case referred for opinion. As we have stated, approached from the medical side, it seemed to us inadequate, and as this was long before Mr. Popper's instrument was described we set to work to have a suitable apparatus constructed. So we approached Mr. Schranz, of the Genito-Urinary Co., who first brought down for our inspection a telescope which he had made some ten years previously and which had been submitted to an eminent bronchoscopist, who appears to have regarded it with some scorn. This aspect of the expert to simplification of technique is not unusual. The electric ophthalmoscope was regarded without favour by the ophthalmic surgeon on its arrival, the gearless motor-car was in the same case amongst those who prided themselves on a clean gear change.

From the starting point of this telescope early in 1931 our instruments were evolved. In the latter part of the year Mr. Popper very kindly brought his instrument to our clinic on several occasions, to try it out practically and for our suggestions, and if our own instrument had not been under construction at the time doubtless we should have been satisfied to work with his or a modified form of it, there being considerable constructional difference between the two instruments. We have no interest in priority, and we neither make nor have made any claim in this respect; in fact, as he states, his instrument was shown at the Royal Society of Medicine at the end of 1931, about the time he brought it to us, whilst ours was still in a stage of evolution. We do however claim to have been the first *in this country* to put before the medical profession, in a paper recently published in your journal, the necessity for further exploitation of this method and its manifold uses in diagnosis; and we imagine that it is this paper exemplifying the practical use of the instrument that has aroused so much interest in our apparatus.

We are, Sir, yours faithfully,

A. J. SCOTT PINCHIN, M.D. Lond.
H. V. MORLOCK, M.D. Lond.

London, W., July 4th, 1932.

SCHOOL MYOPIA

To the Editor of THE LANCET

SIR,—I have read with interest your annotation on School Myopia. In 1928 my colleague at the Sussex Eye Hospital, Mr. C. G. Schurr, suggested that "there were very good grounds for believing that the cause of myopia might be found in a consideration of aberration of growth in children" (Schurr: "Myopia in Childhood"). In 1927 Mr. Wood, of Cape Town, published a paper (*British Journal of Ophthalmology*, 1927) in which he demonstrated that there was a deficiency of calcium in the blood in cases of progressive myopia. About the same time I also was of opinion that progressive myopia was possibly a symptom of calcium deficiency. Mr. Schurr was able to show that in the cases of progressive myopia under his care there was a disproportion in the increase of weight and the increase of height. In the cases under my care I have noticed that myopia tends to increase at the time when the child is growing rapidly taller, but his *weight is not increasing proportionally*. In the space available I cannot give a full account of my arguments, but the following three cases will, I think, speak for themselves.

CASE 1, aged 13 years. First seen September, 1924. Vision right eye 6/36, left eye 6/36. The refraction was −3·50 DSph. in each eye. Lenses of this strength were ordered for constant use, and with them his vision was 6/6 with either eye. He was not growing rapidly, in fact hardly at all, and his refraction was unchanged during 1925. In January, 1926, his vision with his glasses was now 6/6 partly with either eye, and the refraction was −4·50 DSph. in each eye. I ordered him lenses of this strength, with which he saw 6/6 with either eye. All the usual precautions were taken, if one held the view that the pull of the ocular muscles during convergence influenced the myopia. He was sent to a special school, where individual attention was given. In April, 1926, his condition was unchanged. In September, 1926, his myopia had increased to −4·75 DSph. in each eye, and he had begun to grow rapidly. In January, 1931, I found that his myopia had still further increased and was now −5·25 DSph. in either eye. No calcium was prescribed in this case.

CASE 2, aged 15 years. First seen December, 1929. His error of refraction was right eye −2·0 DSph. Left eye −2·25 DSph. His height was 4 ft. 11½ in., and his weight 6 st. 11 lb. I ordered lenses of the above strength, and with them he saw 6/6 with either eye. I also ordered him calcium and parathyroid tablets (P. D. and Co.) by mouth. In July, 1930, his height was 5 ft. 0¼ in. and weight 7 st. 7½ lb., and in December, 1930, his height was 5 ft. 2¾ in., and weight 8 st. During this time his refraction remained unaltered. He then had an accident, causing astigmatism, due to the wound of the left globe. In April, 1931, his height was 5 ft. 3¼ in. and his weight 8 st. 9 lb., and his refraction was right eye − 2·50 DSph., left eye −2·50 DSph., −0·50 DCyl. vert. On all subsequent visits his refraction was found to be unchanged. In this case the boy remained at his public school, and beyond forbidding him to read in bed, no special instructions were given. Lately he, in fact, was reading rather more than usual as he was entering for the London matriculation examination.

CASE 3, aged 14 years. First seen March, 1929. His vision with the glasses he was then wearing was 6/18, and his refraction was −2·50 DSph. −1·0 DCyl. vert. each eye. In December, 1930, his refraction was −3·75 DSph. −1·0 DCyl. vert. each eye, and with these lenses he saw 6/6 with either eye. I now started the administration of calcium and parathyroid. In August, 1931, he had grown in the previous six months 3 in. and his weight had increased 12 lb., and he was now just 17 years old. In December, 1931, his vision with his glasses was still 6/6 with either eye, and since the calcium had been started there has been no increase in his myopia. This boy has also been working for his London matriculation.

I think that the cases here quoted show clearly that the administration of calcium arrested the progression of the myopia, and as a cause for myopia, especially of the progressive type, I suggest calcium deficiency. I should like to note that I have not had good results unless the calcium was administered together with parathyroid extract.

I am, Sir, yours faithfully,

J. P. SPENCER WALKER.

Hove, Brighton, July 1st, 1932.

A CORRECTION

To the Editor of THE LANCET

SIR,—Your kind-hearted reviewer shows no spleen when reviewing my book "The Heart and Spleen in Health and Disease," and I feel sure he will bear me no malice when I point out that he has misquoted me in such a way that his last remark tends to become so vague as to miscarry its full meaning. He states that "the *teaching* in the last chapter is described by the author as full of difficulties and highly dangerous," whereas what I said was that the *problem* was so, and had to be faced. Furthermore the question arises whether he really wishes to refer to the last chapter or to the penultimate one about which I wrote the remark so misquoted.

I am, Sir, yours faithfully,

Swansea, July 2nd, 1932. G. ARBOUR STEPHENS.

ANTIBODIES IN YELLOW FEVER

To the Editor of THE LANCET

SIR,—In your reply to my letter (THE LANCET, June 25th, p. 1385) you state that "all the available evidence, both in the case of the cultivable bacteria as well as the filtrable viruses, goes to show that the power of a serum to confer passive immunity is a function of its antibody content." While the *general* truth of this statement is not to be questioned, must we consider the association between protective action and antibody content so complete as to render it a contradiction to report the presence of one and the absence of the other?

As directly bearing on this question, let me quote Topley and Wilson ("Principles of Bacteriology and Immunity," vol. ii.). On page 665 the authors write:—

"Is the protective effect of an immune serum highly correlated with the presence in it of sensitising antibodies? . . . We may be quite sure that the correlation . . . is very high; the only question at issue is whether it is complete. The experiments which concern us here are those in which one property has apparently been absent in the presence of the other. Such complete dissociation of antibody effects in a specimen of immune serum has not often been demonstrated. . . ."

On p. 666:—

"The literature contains far more numerous records of the converse type of dissociation, in which a serum has been shown to possess a sensitising body . . . when tested in vitro, but to be devoid of protective action . . . when tested in vivo."

And finally (p. 667):—

"Is the process of effective active immunisation always associated with the appearance in the blood serum . . . of sensitising antibodies? . . . There is no doubt at all . . . that the correlation is a high one. On the other hand, the instances in which effective immunisation has been accomplished in the apparent absence of serum antibodies are numerous, and clear cut."

The views of these authors cannot be mistaken: they regard the presence of protective properties in an immune serum as compatible with the absence of sensitising bodies.

With special reference to yellow fever you quote from Prof. E. Hindle's article in "A System of Bacteriology" (vol. vii., p. 458) as follows:—"Experiment with the serum of both man and monkeys after recovery show that immune bodies are present in considerable strength." It is, however, quite clear from the context that Prof. Hindle does not here refer to the content of "immune body" in the sense of the sensitising antibody: he simply means that the serum has a protective action given in small doses. In fact, at the time this article was written no work on the yellow fever immune body (ambocepter) had been reported. The earliest complement-fixation tests (Monteiro and Travassos, *Compt. Rend. Soc. Biol.*, 1930, civ., 290) gave not very consistent results, but the subsequent work of Davis (1931), Frobisher (1931), and Hudson (1932) increased the value of the reaction by improvement in the technique. The yellow fever section of my book had already been written when these reports were seen.

As for the neutralising antibody, I fail to see that this is any other than the "protective antibody" which confers passive immunity. In my last letter I have endeavoured to show that when an animal, otherwise susceptible, shows no symptoms after the injection of a mixture of immune serum and virus, it is not legitimate to infer that the virus was dead at the time of injection—i.e., that viricidal bodies were present. In any case I merely stated in my book that neither immune bodies (meaning complement-fixing bodies) nor viricidal properties had yet been demonstrated in members of the yellow fever group. Since then there has been no report by yellow fever workers of viricidal bodies; Frobisher (*Amer. Jour. Hyg.*, 1932, xv., 2485) has failed to find precipitins in yellow fever immune serum, while a number of workers have reported complement-fixing bodies. There is no question of contradiction: it is merely a question of the existing state of knowledge at the approximate time of writing.

I am, Sir, yours faithfully,

University of Edinburgh, July 2nd, 1932. J. FINE.

STREPTOCOCCAL SEPTICÆMIA

To the Editor of THE LANCET

SIR,—Dr. Burton's letter in your last issue raises points which require answering. In my paper I omitted to mention that a swab from the throat of Case 2 taken within the first 24 hours gave a growth of hæmolytic streptococci. I sent numerous swabs up to Dr. F. Griffith from cases of this epidemic of influenza, and none of the streptococci were agglutinated by his sera.

The real point at issue is whether serum is of benefit to sufferers from streptococcal septicæmia. Dr. Ryle and I in our paper on the Natural History of Streptococcal Septicæmia[1] tried to show that if the disease lasted for several days the prognosis was more hopeful. This does not seem to have been realised as completely as it might. Drs. Burton and Balmain in their case attributed the recovery to anti-scarlatinal and antipuerperal serum rather than to the fact that the infection localised in the lung and possibly pericardium. They quoted several authors to support their plea for serum therapy, and regret I did not refer to the other authors except Comber. The other cases were:—

Lord's case of "probable septicæmia treated with scarlet fever serum" (his own title to his paper).

Sanderson's et alia: two cases, both of which had survived the initial attack on the resistance of the body before the antiscarlet serum was given.

Burt-White's 27 cases with eight deaths. The final paragraph of his paper is worth quoting in full: "Since completing this paper I have treated three cases, in all, of puerperal septicæmia with the same serum, and all proved fatal. I also have had four cases of severe infections with organisms other than *S. pyogenes*, all of which responded to treatment with this serum. Doubt therefore exists whether the serum acts specifically or not."[2]

Following on this list was the employment of Cadham's figures. His method was so completely different from any of the others that it really does not enter the argument, but the fact that he gave it to people considered to be in an advanced stage probably means that the disease had already lasted some time and the prognosis was favourable. I should be most interested in the clinical histories of his cases.

I wish the logic of the treating of these cases was simple—as simple as acids neutralising alkalis—but it is not. I believe that uncomplicated cases, if they are given good nursing, liberal fluids, and possibly put out in the open air, will develop more resistance, more antibactericidal as opposed to antitoxic power, if they are not given serum; but there are cases, and I believe Case 2 of my paper to be one, which have had their resisting power temporarily put out of action, and those cases demand active treatment with serum.

I am, Sir, yours faithfully,

Rugby, July 5th, 1932. RONALD E. SMITH.

[1] Guy's Hosp. Rep., 1931, lxxxi., 1.
[2] THE LANCET, 1930, i., 19.

HIPPURIC ACID SYNTHESIS TEST:
CORRECTION IN THE EXTRA PHARMACOPŒIA

To the Editor of THE LANCET

SIR,—In preparing an abstract of an article on the above kidney function test, by Dr. P. L. Violle, in THE LANCET of June 11th, 1921, p. 1239, for inclusion in my book, a mistake was made which has passed unnoticed through two editions. Instead of the patient being given glycocoll and hippuric acid, as stated, it should read glycocoll and *benzoic* acid. Curiously enough, Dr. Violle himself apparently made an error (or, alternatively, it was a misprint) as he commences by stating "We give the patient a dose of 0·5 gm. of glycocoll and 50 gm. of benzoic acid." Later, a dose of 0·5 gm. of each is referred to, and as this latter dose coincides with that given by him in a previous letter in THE LANCET of April 17th, 1920 (p. 884), there is no doubt that this is what he intended.

The abstract in future editions of the Extra Pharmacopœia will therefore read "0·5 gm. of glycocoll and 0·5 gm. of benzoic acid."

I am, Sir, yours faithfully,

W. H. MARTINDALE.

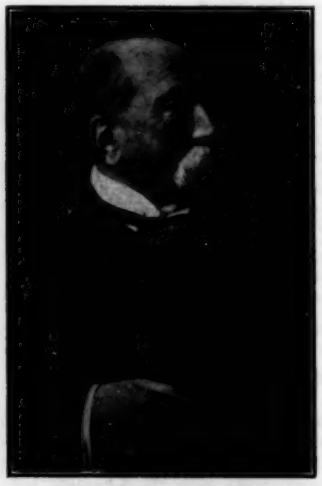
New Cavendish-street, W., July 1st, 1932.

OBITUARY

DAVID NICOLSON, C.B., M.D., C.M., Hon. LL.D. Aberd.
LATE LORD CHANCELLOR'S VISITOR IN LUNACY

WE regret to announce the death of Dr. David Nicolson, which occurred at his home at Camberley, on June 28th, at the advanced age of 87. A distinguished alienist, he was recognised as a leader in his branch of medicine both by the medical profession and the Home Office, and was Lord Chancellor's Visitor in Lunacy for 25 years.

David Nicolson was born at Auchlethen, Cruden, Aberdeenshire, on Christmas Day, 1844, the youngest son of the late William Nicolson and Catherine, the daughter of George Simpson, of Drakemyre. He received his early education at Aberdeen Grammar School and proceeded for his medical training to the University of Aberdeen, where he graduated M.B., C.M., with honours, in 1866 at the early age of 22. After qualification he acted as house surgeon at the Dundee Infirmary, until, in 1867, he began the long career which made him so wise a counsellor on the relations of crime to insanity. In this year he was appointed assistant surgeon to the convict prison at Portland, and later held the same positions at the convict prisons at Woking and Millbank. In 1873 he became senior medical officer at the Portsmouth prison, and he held this post for three years, when he was appointed deputy-superintendent of the Broadmoor Criminal Lunatic Asylum, his chief being Dr. William Orange. He served for ten years under, or rather with, Dr. Orange, whose retirement in 1882 was due to a dangerous assault made upon him by one of the inmates, when Nicolson became medical superintendent, a position which he held for ten years, until, in 1896, he was appointed Lord Chancellor's Visitor in Lunacy.



DR. NICOLSON
[Photograph by F. A. Swaine

During Nicolson's extended term of office at Broadmoor he had been appointed a member of the Home Office Departmental Committee on Habitual Drunkards, and at various dates wrote valuably in medical journals on the state of society in relation to criminal psychology and on the penal measures necessary when dealing with criminal lunatics. On his appointment as Lord Chancellor's Visitor in Lunacy at the end of his term at Broadmoor he was recognised as the first authority in the country on the way to deal with the insane subject when breaking the law. How thoroughly Nicolson was appreciating the consequent responsibility was well shown in an address which, shortly after his appointment, he delivered at the annual meeting of the British Medical Association before the section of psychology. His description of what he termed "the reproachful differences in the medical evidence put forward in lunacy cases" was vivid, and he showed how often the sad conflicts of opinion among medical men and psychologists in lunacy cases could be obviated, mapping out lines upon which uniformity of opinion might be much more frequent. A similarly lucid address on criminal lunacy was communicated to the section of forensic medicine at the International Congress of Medicine in 1913, and was published in full in these columns. The guiding principles of medical jurisprudence in insanity were set out, and the value of that rough-and-ready test, knowledge of right and wrong, was ably discussed, while the right of the public to enjoy protection was insisted upon and the necessity of medical witnesses being on their guard against feigned insanity clearly pointed out. By this date the institution of a court of criminal appeal had added a safeguard against fatal error, and Nicolson's warning that sentimental sympathy with those who yielded to savage passion might lead to failure of justice could be made with all the greater safety. As far back as 1897 Nicolson had received the C.B., and been chosen as President of the Medico-Psychological Association of Great Britain and Ireland, and in 1920 his old University of Aberdeen made him LL.D.

In 1921 he retired from his official duties and lived in retirement at Camberley, always maintaining friendly relations with old colleagues. As a young man he had been a keen cricketer and until advanced middle age he played golf regularly, and though he had outlived most of his contemporaries, those who remained, and likewise those of a generation younger, will long cherish their recollection of his companionship. We at THE LANCET have a special reason for remembering Nicolson. Until his official position made it hard for him to do so, and even then on occasions, he gave us full advice on the difficult

situations which arise in respect of verdicts and sentences, where insanity has been pleaded. His views were firm and unprejudiced; his warnings against mawkishness were due to no lack of humanity, but to a keen sense of the responsibility of the law towards the citizen.

Dr. Nicolson married in 1886, Edith Margaret, daughter of the late William Case, of Fareham, by whom he had three daughters. He had been a widower for eight years.

BRUCE GORDON SETON, C.B., I.M.S.

LATE PERMANENT SECRETARY TO THE DIRECTOR-GENERAL, I.M.S.

WE regret to announce the death of Colonel Sir Bruce Gordon Seton, C.B., L.R.C.P., M.R.C.S., ninth baronet of Abercorn, which occurred in Edinburgh on July 3rd at the age of 63.

Bruce Gordon Seton was a science student at University College, London, in 1887-89, and at St. Bartholomew's Hospital from 1889 until he qualified in 1891. In the same year he entered Netley at the head of the list, and obtained his first commission in the Indian Medical Service in April, 1892. He had family association with India both through his father (Colonel Alexander Seton, R.E.) and his mother, who was a daughter of the late Lieut.-Colonel W. Loch, of the 1st Bombay Lancers; and Indian military service in India in some form or other had been one of his earliest ambitions. He achieved it, both on the military and the medical side, during a service of over 25 years in that country. He was first attached to the Frontier Force and then to the Central India Horse, and saw active service in several expeditions, including that of Waziristan, 1894–95, where he was severely wounded, and the Tochi Field Force, 1897. From 1905 onwards Seton was more and more employed in staff and headquarters work, and from 1908 to 1913 was Permanent Secretary to the Director-General of the Indian Medical Service. During much of this period the position and authority of the Indian Medical Service, under the brilliant guidance of the late Sir Pardey Lukis, was particularly strong. Many of the initiatives and reconstruction schemes of that time depended on Seton's work, while the whole complicated system of distribution and promotion in the personnel of the Service was intimately in his hands. In June, 1913, he was appointed Deputy Director-General and honorary surgeon to the Viceroy. At the beginning of the Great War he had been invalided home, but he obtained charge of the Kitchener hospital for Indian soldiers at Brighton, a difficult administrative position which he filled with distinction recognised by the grant of the C.B., 1917.

He married, in 1895, Elma, daughter of Lieut.-Colonel Frank Armstrong, A.S.C., who survives him with a family of two sons and two daughters, his heir being Mr. Alexander Hay Seton (Royal Scots). In 1915 he succeeded his cousin, the late Sir Bruce Maxwell Seton, who was the eighth holder of the Nova Scotia baronetcy of Seton of Abercorn (the title carrying with it that of Hereditary Armour-bearer and Squire of the Royal Body in Scotland), and after the war he left the service and settled in Edinburgh. Here, as well as in Glasgow, he passed what were by no means the least strenuous or fruitful years of his life in non-medical activities. Unversed in commercial affairs, he nevertheless secured a post as assistant secretary to one of the great tube-making firms in Scotland. His large service experience of men and management, coupled with a natural sympathetic understanding and quick judgment, made it possible for him, in this capacity, to win confidence of employers and workmen whenever trade disputes threatened; and in 1919, when the Scottish Tube-makers Wages' Association was formed, he became its secretary, and practically settled labour and wage conditions throughout the whole tube industry. His other work was a natural sequence of studies and tastes which he had carried with him in boyhood and throughout his professional life in India. He had been an accomplished piper, and in "The Pipes of War," published in 1920, he recorded the history of the Highland pipers during the war, adding a collection of fifty pipe tunes then composed. Heredity had given him a close interest in everything relating to Mary Queen of Scots, some of whose relics he came to possess, as well as in the risings of 1715 and 1745. In Edinburgh he hunted records at the Advocates' Library and elsewhere, and some considerable monographs which he wrote on both periods were published by the Scottish Historical Society. One of these, prepared in conjunction with his daughter, Mrs. Arnot, was a complete record in three volumes, published in 1929 under the title of "The Prisoners of the '45," and traced their fate when in English hands at Carlisle and elsewhere. The same interest, reinforced by the researches of his brother, the late Dr. Walter Seton, secretary of University College, London, impelled him, in 1923, to petition the Crown to admit his right to the Barony of Gordon in the peerage of Scotland. This claim was disputed by the Marquess of Huntly, descendant of the younger family of the second Sir Alexander Seton, from whom Sir Bruce Seton was descended. The House of Lords' Committee of Privileges, while admitting the descent, decided against Bruce Seton by a majority, on the ground that the evidence of the existence of a heritable title of Baron Gordon in 1429 had not been fully established.

A personal friend writes: "Seton had great personal charm, a ready wit, and a rapid and incisive judgment of men and affairs. His personal letters to his friends—and he was a correspondent to treasure—were always memorable. His diverse and seemingly contradictory activities may convey the impression of an eccentric or inconsequent genius. It was far otherwise; the whole key of his life, as the writer of this note can testify from 40 years of friendship, was simplicity and directness. He could always abstract himself with perfect ease from persons and subjects whenever he knew he would have no interest in them. He never played games, avoided social functions, and kept himself to his family, to the duties of his Service, and to the friends of his choosing in all walks of life. Among the friends one must place a select circle of persons in bygone centuries who, for his familiarity with them, might as well have been living in his own house; for all of them, living or summoned from the past, no insight was clearer, no labour was to be grudged, and no affection could be greater."

NEW ACCOMMODATION FOR TWO HOSPITALS.—Two hospitals have recently removed to new quarters. All Saints' Hospital, for genito-urinary diseases, has been transferred from Finchley-road to what was formerly the Charlotte Sharman Orphanage, in St. George's-road, Southwark, which has been modernised at a cost of £10,000. The number of beds has been increased from 31 to 55, including four private wards. The out-patient department, which has hitherto been in Vauxhall Bridge-road, has also been removed to the new quarters.—The patients in Harrogate Infirmary have now all been transferred to the new hospital which has been erected on a site given by Captain C. S. Greenwood. The new building, which has cost £110,000, will be opened formally in the autumn by the Princess Royal, who laid the foundation-stone in 1926.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Colonial Services

THE House of Commons on Friday, July 1st, went into Committee of Supply on Civil Estimates. Captain BOURNE, Deputy Chairman of Committees, was in the hair.

On a vote of £97,875 to complete the sum necessary for the payment of the salaries and expenses of the Colonial Office,

Mr. LUNN said that the Colonies covered an area of 2,000,000 square miles and had a population of not less than 50,000,000 people. Three-fourths of their area and four-fifths of their population were in tropical Africa, and Parliament was concerned not only with their economic development but with the health and education of the people. Lord Moyne (formerly Mr. Walter Guinness), who had been out to East Africa as a financial commissioner, had reported that taxation was very unfairly levied on the natives, and that in all the economies the natives had had to bear the lion's share, sometimes, he feared, with possible danger to the health and well-being of the native community. He (Mr. Lunn) urged that if there were an efficient Labour Commissioner with a staff in every colony he would see that the necessary work was properly planned, that labour was recruited at the most suitable seasons, and that the health, housing, food, and well-being of the native workers were looked after as they should be. He wished to know if these things were inquired into in any way, and how the various tribes supplying labour were affected by the habit of wage earning. Was there any medical examination of recruits on engagement and at the end of their task to ascertain their physical condition? He understood that in French and Belgian territories vital statistics regarding feeding and health and allowable recruiting were kept.

Mr. AMERY said that he was a little surprised that Mr. Lunn, who had worked at the Colonial Office, seemed to think that there was no organisation in the Colonies watching over the needs of the natives. He did not think he (Mr. Amery) had heard any charges that the natives were being defrauded of their pay or that their health was not being properly looked after. On the whole, whether the native preferred to work on the reserves or on the settlers' farms, he was far better off on the latter from the point of view of diet.

Mr. PARKINSON said that the cuts in the Colonial medical services were very heavy. In Lord Moyne's report they were told that in the Masai Reserve, with a population of 50,402, the only medical officer had been withdrawn, while in Central Kavirondo the medical officers had been reduced by one, leaving only one medical officer for a population of 343,205. Medical and sanitary services ought not to be cut down in a country which was developing as Kenya was. The report also stated that: "The provision for health propaganda, of primary importance in the prevention of diseases among the natives, has been progressively reduced from £3150 in 1929 to £60 in 1932." That he (Mr. Parkinson) thought was a very retrograde step.

Dr. MCLEAN said that the Moyne Report dealt with the position of the medical man in the Colonies. It might be said that the aim of modern science was to prevent disease rather than to cure it. As an engineer he had always found it best to collaborate with the Public Health Department in such things as town and village sites and development, and in provisions for water-supply and water-supply sources. It was well recognised, however, that the native usually showed a lack of enthusiasm and often some hostility to health measures. It was very important, however, to remember such things in dealing with the economic question.

After further debate,

Sir P. CUNLIFFE-LISTER, Secretary of State for the Colonies, replying to the debate, said that a great deal of the time of the district and provincial commissioners was occupied in looking after labour interests and the relationships between employers and employed in Kenya.

The vote was agreed to.

HOUSE OF COMMONS

WEDNESDAY, JUNE 29TH

Workmen's Compensation Act

Mr. NEIL MACLEAN asked the Home Secretary whether it was the practice for an injured worker whose case for continued compensation had been referred to a medical referee to be allowed to be accompanied by a friend when undergoing examination by the medical referee.—Mr. STANLEY replied: It is within the discretion of the medical referee to decide in each case what persons, if any, shall be allowed to be present at the examination of the workman. I have no information to show how the referees exercise this discretion.

The Highway Code

Mr. GUY asked the Minister of Transport if he would take steps to secure a wider publicity for the highway code in the interest of safety on the roads.—Mr. PYBUS replied: Up to the present a free copy of the highway code has been issued to every driver of a motor vehicle with his driving licence, and any member of the public can obtain a copy for 1*d*. I understand that the first edition of 3,000,000 copies is practically exhausted and that arrangements are being made for a reprint. I am considering what steps can be taken to bring the provisions of the code to the knowledge of a still wider public.

THURSDAY, JUNE 30TH

National Health Insurance

Mr. RHYS DAVIES asked the Minister of Health what was the procedure adopted by his department to make sure that every compulsorily insured person, especially in the case of domestic servants, was brought within the scope of the national health insurance scheme.—Sir. E. HILTON YOUNG replied: The enforcement of compliance with the National Health Insurance Acts is secured by visits of inspectors to employers' premises and by the investigation of complaints, supplemented where necessary by legal proceedings. As regards domestic servants, although inspectors have no statutory right of entry to private houses, action is taken in all cases where information suggesting non-compliance is received from employed persons or their approved societies.

Mr. BATEY asked the Minister of Health the separate amounts paid by the employers, the employees, and the Treasury to the National Health Insurance Fund for the year 1931 or the latest available date.—Sir E. HILTON YOUNG replied: The contributions paid under the National Health Insurance Acts for the year ended Dec. 31st, 1931, amounted to approximately £25,870,000, of which the portions payable by the employers and employees are estimated to be £13,150,000 and £12,720,000 respectively. The amount paid from the Exchequer was £6,320,000.

Stevens's Treatment for Tuberculosis

Mr. EDWARD WILLIAMS asked the Minister of Health if his attention had been called to the evidence submitted to the Ministry last year of certified cases of pulmonary and other forms of tuberculosis which were speedily cured by the Stevens's treatment; and if he would take steps to examine the evidence and verify the cures with a view to officially adopting this treatment for the benefit of sufferers of tuberculosis.—Sir E. HILTON YOUNG replied: The answer to the first part of the question is in the affirmative. As regards the second part, I would refer the hon. Member to the answer given on this subject on March 11th last.

Pensions to Blind Persons

Mr. EDWARD WILLIAMS asked the Minister of Health to what branch of local expenditure such additions to blind pensions as were found necessary were debited in those areas which had not made declarations under Section 5 of the Local Government Act, 1929.—Sir E. HILTON YOUNG replied: Where this form of assistance is given under the Blind Persons Act, as in the cases mentioned in the last part of the answer given to the hon. Member's question of June 9th, the expenditure is debited to the account out of which the expenses incurred under that Act are payable.

In other cases the expenditure is debited to the public assistance account.

Emergency Telephone Lines

Sir CHARLES OMAN asked the Postmaster-General whether he would secure that the whole-time maintenance and repair of telephone lines, at present confined to so-called emergency lines for doctors, hospitals, police, and fire stations, might be extended to all classes of private telephone lines.—Sir KINGSLEY WOOD replied: The week-day hours of attendance of the maintenance staff at a large number of towns have been extended, with the result that attention is now given to a considerably larger number of faults each day. In addition, I have arranged for the repair service to be available at night and during the week-end for important circuits, such as those of hotels and firms which carry on business to a late hour, as well as for the circuits of doctors, &c., mentioned by the hon. Member. Arrangements are also in hand under which all subscribers will, I hope, be able to get attention to faults on their circuits during the week-end.

Book sent Gratis to Doctors

Mr. JOHN MORRIS asked the Minister of Health whether he was aware that a copy of a book, entitled "The Nomenclature of Diseases," had been sent gratis to every qualified medical man; that the price of the book was marked 5*s.* net and the postage cost 6*d.*; that the only use of the book was that of a reference book in a library; and would he, in the interests of national economy, stop this practice of sending unwanted books and publications gratis to people at the public cost.—Sir E. HILTON YOUNG replied: The answer to the first and second parts of the question is in the affirmative. The cost of the postage is 5*d.* not 6*d.* As regards the third part, the book is of regular and practical use to the medical profession. Successive editions have been recognised since 1869 as indispensable to accurate certification of sickness and of the causes of death. It was for this reason that steps were taken to secure that the latest edition (which supersedes an edition published in 1917) should reach the hands of every registered medical practitioner. My hon. friend will perhaps accept my assurance that no such practice as is described in the last part of the question exists.

Silicosis

Mr. LAWSON asked the Home Secretary the number of compensation claims made, and the number granted, since the silicosis order came into operation.—Mr. STANLEY replied: I understand that the hon. Member is referring to cases among coal-miners. I regret I have no information as to the number of claims made, but the number of cases in coal-mines in which compensation was paid since Feb. 1st, 1929, when the Various Industries (Silicosis) Scheme came into operation, up to the end of 1931, is 91, including 20 fatal cases.

Appointment of a Magistrate

Mr. PIKE asked the Attorney General whether he was aware that the township of Harworth, with a population of over 5000, was without a magistrate, and that schoolmasters, doctors, and other local people were inundated with forms requiring a magistrate's signature; and whether he would recommend the appointment of a magistrate in this township.—Sir T. INSKIP replied: The appointment of a magistrate who will be resident in the township of Harworth is at present under the consideration of the Lord Chancellor.

MONDAY, JULY 4TH

Famine Conditions in India

Mr. HICKS asked the Secretary of State for India whether he could make any statement as to the famine conditions in Bellary and the steps that were being taken to cope with these conditions.—Sir S. HOARE replied: I have no information but will make inquiries.

Ex-Service Men and Neurasthenia

Mr. MCENTEE asked the Minister of Pensions if his attention had been drawn to the work done by the ex-Services Welfare Society for ex-Service men suffering from neurasthenia at the village settlement in Leatherhead; and whether he would consider the possibility of making provision in the estimates of the Ministry of Pensions for a grant in aid.—Major TRYON replied: The activities of the ex-Services Welfare Society are well known to me. It is contrary to the practice of the Ministry to make grants to voluntary institutions, and, in view of the fact that ample provision (amounting this year to £2,650,000) is already made by this House through the organisation of my department for the treatment of ex-Service men suffering from mental and nervous disease whose disability is the outcome of their Great War service, I am unable to entertain the suggestion.

Inspection of Vaccination Wounds

Mr. GROVES asked the Minister of Health what were the ages of the two deaths from infection of vaccination wounds classed to pyæmia and septicæmia in 1930.—Mr. ERNEST BROWN replied: The death classed to pyæmia was at the age of 5 months, and that classed to septicæmia was at the age of 19 years.

Deaths from Small-pox

Mr. GROVES asked the Minister of Health how many deaths had been registered as due to small-pox during the first six months of this year.—Mr. ERNEST BROWN replied: During the first five months of 1932 three deaths have been classed to small-pox. The figures for the month of June are not yet available.

TUESDAY, JULY 5TH.

Radium Ore in Canada

Mr. JOHN asked the Secretary for Dominion Affairs if he could furnish the House with any information as to the action taken to develop the recently discovered pitchblende (radium ore) on the Great Bear Lake, North-West Territory, Canada.—Mr. THOMAS replied: I understand that the deposits in question are being actively developed, and I am sending to the hon. Member the information on the subject which has been supplied to me from the office of the High Commissioner for Canada.

Smuggling of Dangerous Drugs

Mr. JOHN asked the Home Secretary if he had any information as to whether the reduction of preventive personnel due to measures of economy had resulted in any increase in the smuggling of dangerous drugs.—Mr. STANLEY replied: There has been no decrease recently in the preventive staff, and, so far as is known, no increase in the smuggling of dangerous drugs.

Sale of Dangerous Drugs

Sir WILFRID SUGDEN asked the Home Secretary if he was aware that there was at the present time in the West-end of London more open selling of cocaine and similar drugs than at any period since the war, and that the greater part was supplied through chemists who carried on a normal business; and whether he could make a statement on the matter.—Mr. STANLEY replied: No, Sir. All the evidence is to the contrary.

Sir W. SUGDEN asked if it was not the fact that this supply came through continental chemists.

Mr. O. STANLEY: No, Sir.

Sir W. SUGDEN asked whether, if it did not come through continental chemists, the hon. gentleman could say through what source it did come.

Mr. O. STANLEY replied that he had just said that less of it came.

Pensions to Blind Persons

Mr. THOMAS WILLIAMS asked the Secretary to the Treasury whether he was aware that the pension of 10*s.* a week now paid to blind persons at the age of 50 prior to the qualification for the additional pension of 10*s.* on the ground of old age at 65 was stopped at the age of 70; whether consideration had been given to the question of continuing the payment of the full 20*s.* after the age of 70; and, if so, what decision had been reached.—Major ELLIOT replied: I am aware that under the existing law one of the pensions in the class of case referred to by the hon. Member must cease when the pensioner attains the age of 70. The matter has been carefully considered under this and previous administrations, but I cannot hold out any hope of legislation to provide for continuance of the two pensions after that age has been reached.

Shortage of Water in Jerusalem

Mr. DAVID GRENFELL asked the Secretary for the Colonies how many houses in Jerusalem were without direct water-supply for washing and/or drinking; what immediate action was being taken to deal with the present shortage of water in the town; and when it was anticipated that the municipality would be able to furnish the town with an adequate water-supply.—Sir PHILIP CUNLIFFE-LISTER replied: I have no information as to the number of houses in Jerusalem without direct water-supply. I understand that, in view of the present shortage, steps have been taken to ration the inhabitants. A comprehensive scheme for the provision of an enlarged supply from a new source, to be undertaken by the Government of Palestine in coöperation with the municipality, is at present under active examination, both in its technical and in its financial aspects. It is estimated that it will take two years to complete the scheme.

Cost of Education Services

Mr. POTTER asked the Parliamentary Secretary to the Board of Education the average annual over-all cost per

elementary pupil in schools under public control in England and Wales for the year 1913 and for the nearest available 12 months 1930–31; and the percentage increase of the three principal items of expenditure which had caused the rise in the annual charge on public funds for elementary education.—Mr. HERWALD RAMSBOTHAM replied: The total cost per child to public funds of elementary education was £13 2*s.* 6*d.* in 1930-31, as compared with £4 15*s.* 2*d.* in 1913–14, being an increase of £8 7*s.* 4*d.* The three principal items which caused this increase are teachers' salaries, where the increased cost is £5 10*s.* 11*d.* per child, or 181 per cent.; miscellaneous expenditure (principally on the upkeep and equipment of schools), where the increase is £1 5*s.* 5*d.* per child, or 171 per cent.; and special services—i.e., school medical service, schools for defective children, &c.—where the increase is 13*s.* per child, or 390 per cent.

MEDICAL NEWS

University of Oxford

The following degrees have lately been conferred:—

D.M.—Hon. Olive B. Buckley and C. L. Elgood.

B.M.—J. M. L. Burtenshaw.

At recent examinations the following candidates were successful:—

Materia Medica and Pharmacology.—Elsie W. Alden, Norah E. R. Archer, J. E. M. Ayoub, H. J. Barnie, J. H. Bartlett, Roger Bevan, C. A. Boucher, A. M. G. Campbell, D. G. W. Clyne, C. D. Coode, A. W. Dawson-Grove, Arthur Fearnley, J. H. T. Harrington, D. H. Hertz, B. B. Hickey, D. A. Jennings, T. A. M. Johns, J. W. Litchfield, A. P. Meiklejohn, J. E. Morley, P. W. Morse, Reginald Passmore, F. R. P. Pepper, A. D. Picton, J. L. Reid, G. R. Richards, P. E. F. Routley, O. H. J. M. Telering, René Thomas, and C. M. Vaillant.

Pathology.—T. D. R. Aubrey, Roger Bevan, P. M. F. Bishop, J. A. Boycott, C. D. Coode, W. F. Fawcett, Arthur Fearnley, Eric Fowler, R. H. Gardiner, A. J. Grace, C. F. Greenwood, B. B. Hickey, D. A. Jennings, J. E. Morley, P. W. Morse, Ronald Nutt, J. E. G. Pearson, C. M. Vaillant, and T. H. N. Whitehead.

Medicine, Surgery, and Midwifery.—S. W. T. Bentall, P. M. F. Bishop, R. H. Bolton, Edward Braithwaite, F. W. Brown, H. G. N. Cooper, A. J. E. Edelsten, G. G. M. Edelsten, D. G. Ferriman, W. H. Greamy, J. E. Jenkins, C. J. King-Turner, A. W. D. Leishman, Caroline E. (Mrs.) Nicholson, J. A. Nunn, J. L. Ryce, W. S. Tegner, R. L. H. Townsend, O. J. Vaughan-Jackson, H. G. H. Waters, and E. J. Williams.

The Theodore Williams scholarship in human anatomy has been awarded to David Kendale (proxime accesserunt: W. E. Gibb and A. D. Picton), and the Theodore Williams scholarship in pathology to B. B. Hickey (proxime accessit: A. J. Grace.)

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

Surgery.—J. H. Beale, Universities of Oxford and Sheffield; P. D. Bhatt, London Hosp.; L. A. de Dombal, Univ. of Sheffield; J. F. Rivers Moore, London Hosp.; J. C. Selnes, Charing Cross Hosp.; Grantley Smith, Univ. of Bristol and Guy's Hosp.; and F. A. Trowbridge, St. Mary's Hosp.

Medicine.—C. H. Blewett, Middlesex Hosp.; M. B. Chandulal, Univ. of Hong Kong; G. A. Dingemans, Guy's Hosp.; A. A. Grace, St. Bart.'s Hosp.; E. Jacomb, Charing Cross Hosp.; J. W. Meyers, King's Coll. Hosp.; T. S. Nicol, Charing Cross Hosp.; C. V. P. Pillai and J. F. Rivers Moore, London Hosp.; and E. O. Smith, Univ. Coll. Hosp.

Forensic Medicine.—G. R. Davies and P. A. Diemer, St. Mary's Hosp.; G. E. Ellison, Univ. of Cambridge and Royal Colleges, Edinburgh; A. A. Grace, St. Bart.'s Hosp.; T. E. Mitchell, Guy's Hosp.; F. C. Moll, Westminster Hosp.; T. S. Nicol, Charing Cross Hosp.; C. V. P. Pillai and J. F. Rivers Moore, London Hosp.; and R. C. P. Thomas, St. Mary's Hosp.

Midwifery.—F. W. Baskerville, St. Mary's Hosp.; J. L. Bates, Guy's Hosp.; P. A. Diemer, St. Mary's Hosp.; J. C. Hoyle, Univ. of Manchester; W. S. Pitt Payne, Guy's Hosp.; and J. F. Rivers Moore, London Hosp.

The following candidates, having completed the final examination, are granted the diploma of the Society entitling them to practise medicine, surgery, and midwifery: J. H. Beale, C. H. Blewett, G. R. Davies, L. A. De Dombal, G. A. Dingemans, A. A. Grace, J. C. Hoyle, E. Jacomb, J. F. Rivers Moore, E. O. Smith, Grantley Smith, and F. A. Trowbridge.

International Congress on Biliary Lithiasis

The Congrès International de la Lithiase Biliaire will be held at Vichy from Sept. 19th to 22nd, 1932, under the presidency of Prof. P. Carnot, and we have received from the secretary-general, Dr. J. Aimard, a programme of the proceedings. These will be divided into four sections, the first two dealing with medicine and surgery generally, the third with therapeutics and hydrology, and the fourth with electro-radiology and physics. Doctors wishing to take part in the congress are requested to notify the General Secretariat at 24, Boulevard des Capucines, Paris, where all correspondence should be addressed. The congress is under distinguished patronage; the English honorary president is Lord Moynihan, and Prof. D. P. D. Wilkie is announced to contribute to the surgical proceedings. French and foreign doctors are admitted as titular members of the congress, and the entrance fee for them is fixed at 50 French francs, a fee of 25 francs being asked for associate members—that is, wives and families. A 50 per cent. reduction on railway fares for the main French lines will be granted, and the necessary vouchers will be valid for a month, thus enabling doctors from abroad to make an extended sojourn in France.

University of Birmingham

On July 2nd the following degrees were conferred:—

M.D.—R. D. Lockhart and L. G. Parsons.

Ch.M.—Seymour Barling.

D.Sc.—E. Weston Hurst, M.D. (*in absentia*).

M.B.—(Second-class Honours): A. H. Barber, Lilian M. Buxton, A. F. Goode, and James Hardman. Pass degree: D. T. Davies, T. G. Davies, K. B. Forsyth, E. N. G. Gorman, W. B. Gough, Peggy Levi, A. D. B. Mackie, J. C. Neill, Frances E. Smart, Donald Turner, A. J. K. Wilson, and A. T. Wynne.

The Diploma in Dental Surgery has been conferred on T. E. D. Beavan.

University of Liverpool

At recent examinations the following candidates were successful:—

M.D.

C. H. Bradley, J. W. Cheetham, R. A. Furniss, G. Macdonald, E. E. Prebble, and J. W. Reid.

M.H.

B. L. Davis,

M.B. AND CH.B. WITH HONOURS.

Class I.—W. Bullock and A. S. Kerr.

Class II.—H. Ackers, F. R. Edwards, and M. H. Papperovitch.

FINAL EXAMINATION FOR M.B. AND CH.B.

Part III. (1923 *Regulations*).—R. Fairhurst and Ruth Simpson.

Part B. (1924 *Regs.*).—D. G. W. Brown, Mervyn H. Clark, H. V. Corbett, H. L. Davies, W. S. Davies, J. R. Eatough, G. R. Griffith, H. G. Hanley, T. P. J. Higgins, E. R. Jones, Nancy L. Lewis, Eva Macdonald, Margaret Newton, E. Parry, Beatrice L. H. Sergeant, A. L. Smallwood, Edna L. Smart, G. E. Thomas, D. Wainwright, V. J. Woodward, and R. F. Wynroe.

D.P.H.

Part I.—L. G. Anderson, C. L. Emmerson, G. A. Fulton, and G. A. C. Lynch.

Part II.—E. D. Irvine, G. W. Paton, M. Solomon, and Honora J. Twomey.

D.T.M.

H. E. M. Adams, B. S. Bindra, and E. G. Williams.

Among awards of Fellowships and scholarships are the following:—John Rankin Fellowships in Anatomy: Dr. O. Vaughan Jones and Dr. E. B. Whittingham. Thelwall Thomas Fellowship in Surgical Pathology: Dr. T. L. Hughes. John W. Garrett International Fellowship in Bacteriology: Dr. F. J. H. Crawford. Holt Fellowship in Pathology: Dr. W. W. Gerrard. Holt Fellowship in Physiology: Dr. A. B. Follows. Samuels Memorial Scholarships: Medicine, Dr. D. U. Owen; Surgery, Dr. M. Silverstone; Obstetrics and Gynæcology, Mr. P. Malpas.

First International Congress of Mediterranean Hygiene

This congress, to which Prof. G. H. F. Nuttall, of Cambridge, has been appointed a representative for the British Government, will be held in Marseilles from Tuesday, Sept. 20th, to Sunday, Sept. 25th, under the auspices of the Marseilles Faculty of Medicine. The inauguration takes place at 9 A.M. on the first day in the presence of the President of the Republic. The president of the congress will be Prof. E. Marchoux, of the Pasteur Institute, and the subjects, among others, which have been put down for discussion include spirochætosis with special reference to Spain, undulant fever, the prophylaxis of infective diseases, the sanitation of ships, and the measures for dealing with plague rats and fleas, and other matters of moment in hygiene and demography. At the close of the business part of the congress arrangements have been made for social functions and excursions, and the railways of France will make liberal reductions on the fares of those attending the congress. Further particulars can be obtained by application in Marseilles to the Secrétariat du Congrès, Faculté de Médécine, Palais du Pharo, and in Paris to Dr. Ch. Broquet, 195, Boulevard Saint-Germain, Paris 7e; while particulars as to railway facilities can be obtained from the Agence des Voyages Pratiques Exprinter, 26, Avenue de l'Opera, Paris.

Royal Institute of Public Health

This institute has now moved to its new premises at 23, Queen-square, London, W.C.1 (Tel.: Terminus 4788 and 6206).

Tomarkin Foundation

The fourth international medical post-graduate course of the Tomarkin Foundation will be held at Milan from Sept. 12th to Oct. 2nd. The subjects to be dealt with are: heart diseases; cancer; preventive inoculations against diphtheria; neurology (neurosyphilis, multiple sclerosis, poliomyelitis); and hormones. Particulars may be had from the secretary of the Foundation, Case postale 128, Locarno, Switzerland.

International Scheme of Nursing Scholarships

On July 6th a meeting of various bodies associated with the nursing profession was held at St. Thomas's Hospital to appoint a British council to coöperate with similar councils in other countries in the establishment and operation of an International Florence Nightingale Foundation. The form the memorial is to take is the continuance and development, by the endowment of additional scholarships, of the post-graduate courses for nurses which the League of Red Cross Societies, with the coöperation of Bedford College and the College of Nursing, is now running in its training centre in Manchester-square.

Royal Society of Medicine Awards

The council of the Royal Society of Medicine have awarded the C. E. Wallis lectureship to Mrs. Lilian Lindsay, and the Colyer prize of 30 guineas to Mr. Martin A. Rushton for his work on "matters regarding dental science during the past four years." These are both first awards. The C. E. Wallis lecture, which was founded in memory of the late Mr. C. E. Wallis by his brother, Mr. Ferdinand Wallis, is a trust in the hands of the Royal Society of Medicine, the accumulated income of £100 every fifth year being used as an honorarium to the chosen lecturer. The Colyer prize ws founded ain 1926 to commemorate the 25 years' service of Sir Frank Colyer as honorary curator of the odontological museum. It will be awarded every third year if work submitted justifies the award.

Fellowship of Medicine and Post-Graduate Medical Association

Lieut.-Colonel R. H. Elliot is giving a series of lectures on Migraine at the rooms of the Medical Society of London, 11, Chandos-street, W., at 5 P.M., on July 14th, 21st and 28th. At 8.30 P.M. on Friday, July 22nd, at the National Temperance Hospital, the first of a series of discussion-demonstrations will take place. The subject of this demonstration will be Certain Aspects of Indigestion; a physician, a surgeon, a radiologist, and a pathologist will offer contributions, and the rest of the evening will be devoted to informal discussion. In the absence of special courses, attention is called to the individual clinics which are available every day. These clinics may be attended only by special arrangement with the Fellowship. The number of post-graduates attending each of them is strictly limited, the usual maximum being four, so that the teaching amounts almost to individual tuition. Further particulars may be had from the secretary of the Fellowship at 1, Wimpole-street, W.1.

Psychology and Psychical Research

The last meeting in connexion with the jubilee celebration of the Society for Psychical Research was held on July 4th at the Conway Hall, London, when Dr. William Brown, Wilde reader in mental philosophy in the University of Oxford, lectured on Psychology and Psychical Research. Advances in the study of psychology during the last 50 years, he said, had had strong repercussions in the domain of psychical research. This especially applied to hypnotism and hysterical dissociation in relation to the phenomena of mediumistic trance. Hypnotic and psycho-analytical investigations had supplemented the theory of the "subliminal self" first propounded by F. W. H. Myers, one of the founders of the Society for Psychical Research, without however, really supplanting it. The evidence of supernormal power working below the threshold of consciousness, whether in the form of apparent telepathy, clairvoyance, or premonition, or in the apparent production of physical phenomena, must be estimated on its merits and not hastily prejudged in terms of coincidence, self-deception, or conscious fraud. The employment of the statistical method on a large number of cases was entirely in the spirit of strict science, yet the predominantly negative results recently obtained along these lines as regards manifestations of telepathy and clairvoyance should not blind the public to the possibility of such phenomena in special cases and under special conditions. The intensive study of well-attested individual cases was needed to correct the balance, and it was especially along this line that the Society for Psychical Research had done such brilliant work. Though a personal belief in survival might be based most firmly on general philosophical and religious considerations as to the nature and value of human experiences, nevertheless the sum total of evidence of a scientific nature accumulated by the society in support of survival was far from negligible.

British Empire Cancer Campaign

The annual general meeting will be held next Monday, July 11th, in the Moses Room at the House of Lords, at 4.30 P.M., when the president, H.R.H. the Duke of York, will preside.

Association of Surgeons

The Association of Surgeons of Great Britain and Ireland offer a scholarship of £350, to be held for one year. The holder will be expected either to pursue a definite line of research or to study surgery in specified clinics at home or abroad. Application must be made before Sept. 30th, and particulars may be had from the hon. secretary, Mr. Julian Taylor, 65, Portland-place, London, W.1.

Staffordshire Orthopædic Hospital

Standon Hall, which has been converted by the Staffordshire county council into an orthopædic hospital, has just received its first batch of patients. The house, which is in the heart of the country, was formerly the residence of Sir Thomas Salt, with the addition of two pavilions and a theatre block, has accommodation for 120 patients and a nursing staff of 40. Standon Hall itself provides wards for 24 children, the nurses' home, the administrative offices, and a massage room which will also be used as a gymnasium.

People's League of Health

A report of the League on the relations of the milk supply of the country to tuberculosis, containing the recommendations of that body, will receive important discussion at the Mansion House, London, on Monday next, July 11th. The meeting opens at 3.15, and will be presided over by the Lord Mayor. The speakers will be Lord Dawson, Lord Moynihan, Lord Burnham, the Lord Mayor of Manchester, and Dr. W. G. Savage, M.O.H., county of Somerset. The report of the People's League of Health was analysed in these columns on March 19th.

Notification of Chicken-pox and Pemphigus Neonatorum

The town clerk of Manchester has notified the medical practitioners of the city that as for a period of 12 months from July 1st "the disease known as chicken-pox" and "the disease known as pemphigus neonatorum" shall come under the Infectious Disease (Notification) Act, 1889, the council of the city being the local authority for the city of Manchester within the meaning of this Act.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. A. T. Rivers to be Surg. Capt.

ROYAL ARMY MEDICAL CORPS

The King has approved the appointment of Lieut.-General Sir T. H. John C. Goodwin, K.C.B., K.C.M.G., D.S.O., F.R.C.S. (retd. pay), Colonel Commandant, the Army Dental Corps, as Colonel Commandant, Royal Army Medical Corps, in succession to Major-General Sir Maurice P. C. Holt, K.C.B., K.C.M.G., D.S.O. (retd. pay).

Capt. C. A. Hutchinson to be Maj. (prov.).

ARMY RESERVE OF OFFICERS

Maj. H. J. McGrigor, having attained the age limit of liability to recall, ceases to belong to the Res. of Offrs.

TERRITORIAL ARMY

Maj. and Bt. Lt.-Col. A. Leggat to be Lt.-Col.

Lt.-Col. J. Wallace to be Bt. Col.

ROYAL AIR FORCE

Wing. Comdrs. B. A. Playne and H. E. Whittingham to be Group Capts.

Squadron Leaders G. S. Marshall, R. W. Ryan, and H. S. C. Starkey to be Wing Comdrs.

Dental Branch.—Flight Lt. (Hon. Squadron Leader) E. A. Wheeler relinquishes his temporary commission on completion of duty.

DEATHS IN THE SERVICES

Surg.-Capt. James McCardie Martin, D.S.O., R.N. (retd.), who died on June 30th at the age of 73, qualified L.R.C.P., L.R.C.S. Edin. in 1880, and two years later joined the Royal Navy. He reached the rank of staff surgeon in 1894, and served in H.M.S. *Forte* during the Benin Expedition of 1897. He was at the capture of Benin City, and carried Surg. C. J. F. Fyfe, of the *St. George*, off the field when the latter, who subsequently died, was wounded (mentioned in despatches, and General Africa medal with Benin clasp and D.S.O.). Later he served in the flagship *Barfleur* during the China War, and in 1902 was attached to the *Cambridge*, the gunnery school ship at Devonport. He retired in 1904 with the rank of Deputy Inspector-General of Hospitals and Fleets.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

PADDINGTON MEDICAL SOCIETY.
TUESDAY, July 12th.—9 P.M. (at the Great Western Royal Hotel, Paddington, W.), Dr. F. C. Martley: Sickness Assurance.

SOCIETY FOR THE STUDY OF INEBRIETY.
TUESDAY, July 12th.—4 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. A. Baldie: The Causation, Treatment, and Control of the Alcohol Habit.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.
WEDNESDAY, July 13th, to SATURDAY.—Annual meeting at Stirling.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, July 11th, to SATURDAY, July 16th.—PRINCE OF WALES'S HOSPITAL, Tottenham, N. Second week of a post-graduate course in general medicine, surgery, and the specialties. All day. Especially suitable for general practitioners.—MEDICAL SOCIETY OF LONDON, Chandos-street, Cavendish-square. Lecture on Migraine (No. 1) by Col. R. H. Elliot on Thurs. at 5 P.M. Especially suitable for general practitioners.—(The above are open only to Members of the Fellowship of Medicine.)

ST. PETER'S HOSPITAL, Henrietta-street, W.C.
WEDNESDAY, July 13th.—3 P.M., Dr. C. Dukes: Tumours of the Testicle.

NATIONAL CENTRE AND POST-GRADUATE SCHOOL OF RADIOTHERAPY, Riding House-street, W.
WEDNESDAY, July 13th.—4.30 P.M., Mr. Geoffrey Keynes: Breast.

Vacancies

For further information refer to the advertisement columns.

Alton, Hants, Lord Mayor Treloar Cripples Hospital.—Asst. Res. M.O. £150.
Altrincham General Hospital.—Sen. H.S. At rate of £150.
Ashford Hospital, Kent.—H.S. £150.
Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.
Beckenham, Kent, Bethlem Hospital, Monk's Orchard.—Res. H.P. At rate of £150.
Bedford County Hospital.—First and Second H.S.'s. At rate of £165 and £140 respectively.
Birmingham Royal Cripples' Hospital.—H.S. At rate of £200.
Birmingham University.—Walter Myers Travelling Studentship. £300.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.
Brighton, Royal Sussex County Hospital.—Cas. H.S. £120.
Bristol University.—Lecturer in Pharmacology in Physiology Dept. £400–£500.
Burnley, Victoria Hospital.—H.P. and H.S. Each at rate of £150.
Bury Infirmary, Lancs.—H.S. to Special Depts. At rate of £175.
Buxton, Derbyshire, Devonshire Hospital.—Asst. H.P. At rate of £175.
Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist, &c. At rate of £130.
Cardiff Royal Infirmary.—H.P's. and H.S's. Each at rate of £50.
Chichester, Graylingwell Mental Hospital.—Third Asst. M.O. £350.
Coventry, Coventry and Warwickshire Hospital.—Res. Surg. O. £200. Also Hon. Asst. Dental Surgeon.
Coventry, Gulson-road Municipal Hospital.—Med. Supt. £750.
Coventry City.—Asst. School M.O., &c. £500.
Doncaster Royal Infirmary.—Cas. H.S. Also H.P. Each at rate of £175.
Eastbourne, Princess Alice Memorial Hospital.—H.S. At rate of £150.
East Lothian, East Fortune Sanatorium.—Res. Asst. M.O. £250.
Freemasons Hospital and Nursing Home, 237, Fulham-road, S.W. Anæsthetist.
Gloucester, Gloucestershire Royal Infirmary, &c.—Second H.S. At rate of £120.
Guildford, Royal Surrey County Hospital.—H.S. £150.
Halifax Royal Infirmary.—Third H.S. At rate of £150.
Hampstead General and N.W. London Hospital, Haverstock Hill, N.W.—H.P. At rate of £100.
Harrogate and District General Hospital.—Jun. H.S. £140.
Hertford County Hospital.—H.S. At rate of £150.
Huddersfield Royal Infirmary.—H.S. At rate of £150.
Keighley and District Victoria Hospital.—Res. M.O. At rate of £180.
King Edward Memorial Hospital, Ealing.—Two Jun. H.S.'s. Each £150.
Leicestershire County Council Sanatorium and Infectious Diseases Hospital, Markfield.—Asst. Res. M.O. £400.
Lewisham Hospital, High-street, S.E.—Asst. M.O. £350.
Liverpool Royal Children's Hospital.—Hon. Asst. P.
Macclesfield General Infirmary.—Res. M.O. At rate of £180.
Manchester Northern Hospital for Women and Children, Park Place, Cheetham Hill-road.—Sen. and Jun. H.S.'s. £130 and £100 respectively.
Manchester, St. Mary's Hospitals.—Two H.S.'s. for Whitworth-street West, and two for Whitworth Park. All at rate of £50
Middlesex County Council.—District M.O. for Edmonton (North). £200. Also Public Vaccinator.
Miller General Hospital, Greenwich-road, S.E.—Cas. O. At rate of £150.
Nelson Hospital, Merton, S.W.—Res. H.S. At rate of £100.
Newcastle General Hospital.—Two H.P.'s. Each at rate of £150.
Norwich City.—Asst. M.O.H., and Asst. School M.O. £506.
Norwich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £120.
Oldham Royal Infirmary.—H.S. At rate of £175.
Preston County Borough.—Asst. School M.O. £500.
Preston, Lancs, Biddulph Grange Orthopædic Hospital.—Jun. H.S. £150.
Queen's Hospital for Children, Hackney-road, E.—Cas. O. At rate of £100.
Reading, Royal Berkshire Hospital.—Cas. O. £150.
Rotherham Hospital.—Cas. H.S. £150.
Royal Northern Hospital, Holloway, N.—H.P. At rate of £70.
St. George's Hospital, S.W.—Res. Anæsthetist. £100.
St. John's Hospital, Lewisham, S.E.—Res. H.S., Cas. O. and H.P. Each £100.
St. Mary's Hospital, W.—Asst. Pathological Chemist. £300.
St. Stephen's Hospital, Fulham-road, S.W.—Asst. M.O. £250.
Salford, Hope Hospital, Pendleton.—Asst. Res. M.O. At rate of £250.
Salford Royal Hospital.—Cas. H.S. At rate of £125.
Salisbury, General Infirmary.—Two H.S's. Each at rate of £150.
Salvation Army, Mothers' Hospital, Lower Clapton-road, E.—Jun. Res. M.O. At rate of £60.
Sheffield Children's Hospital.—Res. M.O. £175. Also H.P. and H.S. Each at rate of £100.
Sheffield, Jessop Hospital for Women.—Asst H.S. At rate of £100.
Sheffield Royal Infirmary.—Aural H.S. £80–£100. Also H.S. At rate of £80.
Southampton, Royal South Hants and Southampton Hospital.—Cas. O. At rate of £150.
South-Eastern Hospital for Children, Sydenham, S.E.—Res. M.O. At rate of £100.
Southern Rhodesia Medical Service.—Two Government M.O.'s. Each £500.
South Shields, Harton Hospital.—H.S. £150.
South Shields, Ingham Infirmary.—Sen. and Jun. H.S.'s. £200 and £150 respectively.
Stockport Infirmary.—Jun. Res. Surg. £150.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. for Ophthalmic and Aural Depts. At rate of £150.
Stoke-on-Trent Orthopædic Hospital.—H.S. £150.
Swansea General and Eye Hospital.—Cas. O. At rate of £200.
Tilbury Hospital, Essex.—H.S. At rate of £150.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.S. At rate of £100.
Walsall General Hospital.—H.S. At rate of £150.
West Norfolk and King's Lynn General Hospital.—H.S. and H.P. At rate of £175 and £150 respectively.
Willesden General Hospital.—Cas. O. At rate of £120. H.S. At rate of £110. Also H.P. At rate of £100.
Winchester, Royal Hampshire County Hospital.—H.S. At rate of £125.
Worcester General Infirmary.—Second and Third Res. M.O.'s. £150 and £120 respectively.
Wrexham and East Denbighshire War Memorial Hospital.—Res. H.S. At rate of £150.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Newmarket (Suffolk).

Births, Marriages, and Deaths

BIRTHS.

HOLLINS.—On June 29th, at Sutherland-avenue, W., the wife of Arthur Sturgess Hollins, M.B., M.R.C.P., of Thames Ditton, Surrey, of a son.
KNOX.—On June 29th, at Entumeni, Tring, Herts, the wife of Dr. Norman Knox, of a son.
MCMAHON.—On June 24th, at College-street, Armagh, the wife of Dr. W. J. McMahon, of a son.
MARSDEN.—On June 29th, at Highview-road, Sidcup, the wife of J. Pickford Marsden, M.D., of a son.

MARRIAGES.

MAYER—WOODROFFE.—On July 2nd, in London, Thomas Frederick Gisborne Mayer, M.R.C.S. Eng., L.R.C.P. Lond., to Alice Elsa Woodroffe, widow of J. H. Woodroffe, M.D., and younger daughter of E. P. Johnson, Dunlaoghaire, Dublin.
PROBYN-WILLIAMS—WALSH.—On June 25th, at Brompton Oratory, Robert Cuthbert Probyn-Williams, M.A., B.M., B.Ch. Oxon., of Combe Martin, N. Devon, to Mary Veronica, daughter of the late Mr. and Mrs. Martin Walsh, of Waterloo, Lancs.

DEATHS.

HADFIELD.—On June 28th, at Bayl-end, Great Canfield, Dunmow, Essex, Philip Heywood Hadfield, L.R.C.P., L.R.C.S., late Major R.A.F., aged 63.
NICOLSON.—On June 28th, at Sossewood, Camberley, Dr. David Nicolson, C.B., LL.D., aged 87.
WILLIAMSON.—On June 29th, at College-road, Epsom, John Williamson, M.D., D.P.H., for over 30 years Medical Officer of Health for Epsom, Dorking, Leatherhead, and Carshalton, aged 64.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

THE USE AND ABUSE OF THE HOSPITAL PATHOLOGICAL LABORATORY *

BY S. C. DYKE, D.M., M.R.C.P.
CONSULTING PATHOLOGIST, THE ROYAL HOSPITAL, WOLVERHAMPTON

HOSPITAL pathological laboratories must vary in the scope of their functions according to the nature of the hospital to which they are attached; it is the laboratory of the non-teaching general hospital with which I am concerned here. The function of the laboratory is determined by the function of the hospital; that of the non-teaching general hospital is the practice of clinical medicine in all its branches, and its laboratory must concern itself with pathology in its applications to clinical medicine—in other words with clinical pathology.

Exception has been taken to this term "clinical pathology" and its subject matter has been denied as constituting a special branch of medical knowledge. The position of clinical pathology as such a special branch of medicine is, however, now generally acknowledged and has lately received official recognition in the establishment by the University of London of an academic diploma in the subject. Even so it remains difficult to define its scope; briefly it may be regarded as including all branches of pathology in so far as they are of service in affording knowledge and understanding of the natural history of disease. Time was when morbid anatomy constituted the whole of pathology; morbid anatomy and histology are to-day as important as ever, but they are far from constituting the whole or even the major part of present-day pathology. Pathology must be regarded as morbid physiology and even as something more, for whereas physiology sets out to discover the nature of normal life processes, pathology, in addition to studying the departures from the normal of these processes, must also concern itself to some extent with the materies morbi, thus drawing not the whole but certainly a large part of bacteriology and parasitology within its field. Clinical pathology must comprise morbid anatomy and histology, bacteriology and biochemistry, with their allied subject of immunology and any other branches of the physical sciences in so far as their application may assist in the study of the natural history of disease.

Functions of the Clinical Laboratory

It is obvious then that the scope of the clinical pathological laboratory must be wide. In large institutions—teaching hospitals and the like—it is customary to departmentalise the field. The large modern hospital must have its separate departments of morbid anatomy and histology, of biochemistry and bacteriology, of immunology—possibly of metabolism and nutrition. Such a degree of specialisation is for many reasons, principally those of expense, beyond the reach of the non-teaching general hospital, and that this is so is not wholly a matter for regret. Departmentalisation, though it brings with it increased efficiency in detail and though it may make possible valuable research, all too often tends to fail in coöperation and in the correlation of results. To establish contact with three or four laboratories may not be easy; admirable reports may result from the examination of one specimen in two or three different departments, but there is some danger that these separate reports will never be correlated and their ultimate fate merely be to add to the bulk of paper in the hospital records. There is much to be said for the department of clinical pathology under a single head and concerning itself with all branches of pathology. In such a single department under a suitable head the danger of failure in coöperation and correlation is reduced to the minimum.

The size of the large teaching hospitals makes the centralisation of all classes of pathological work under one head almost impossible; in the ordinary non-teaching general hospital such a centralisation is perfectly feasible and full advantage should be taken of the fact. There is every reason why all the pathological work of such hospitals should be carried out in one department and under one head.

It may be asked where are to be found the Admirable Crichtons capable of directing a combined laboratory of morbid anatomy and histology, of bacteriology and biochemistry? It is true that until a few years ago such people might have been hard to come by, but with the increased realisation since the war of the importance of the scientific basis of medicine and the consequent adjustments in the curricula of some of the medical schools their numbers have increased. I am far from suggesting that academic distinction gained in the scientific side of the school curriculum will necessarily render the newly qualified medical man or woman a suitable director for such a combined department as outlined. To make a competent clinical pathologist requires several years of special experience and study such as can only be gained in the laboratories and the wards of a large and preferably a teaching hospital. At the present time many of the teaching hospitals arrange for their assistants, demonstrators, and lecturers to move from one department or laboratory to another, thus gaining experience in all branches of pathology. It is essential that the director of a laboratory of clinical pathology such as is required to meet the needs of a general hospital should have this experience of all branches of pathological work.

Value in Diagnosis

To speak of the uses of the pathological laboratory in the practice of medicine, hospital or otherwise, is not altogether easy, not because there is any difficulty about pointing out the directions in which it may serve, but because it is hard to think of any in which its aid may not profitably be employed. So far as medicine is a science at all, pathology supplies its basic general principles. Its business is the elucidation of the nature of the process of disease—in other words, diagnosis. Diagnosis, with prognosis and treatment constitute the whole of medicine and the two latter depend upon the former; in the absence of correct diagnosis accurate prognosis is impossible and efficient treatment difficult.

Diagnosis, then, may be regarded as the prime function of the hospital laboratory, but diagnosis is something more than the application of a name to a syndrome. Rightly regarded it is the conception of the morbid changes underlying the clinical condition as presenting itself in the patient; in diagnosis the unaided senses may carry the observer far; but the additional aids offered by the laboratory will in most instances carry him a good deal further; the function of the laboratory is to provide finer and more subtle methods of investigation than are afforded by the unaided senses.

It is, or at any rate until a year or so ago was not, uncommon to read diatribes from medical practitioners, usually described as of the "old school" against the use of laboratory aids. It is difficult to understand this viewpoint; considered as means of affording information as to the nature of disease there is little difference between auditory impressions received through a stethoscope and visual ones received by reading a burette. In both cases the information obtained is in the absence of clinical experience and common-sense equally liable to misinterpretation and misconstruction.

In diagnosis the uses of the laboratory are so numerous and for the most part so well known to you that I find it difficult to particularise. Let me take a few examples.

* An address delivered before the Worcester Medical Society.

THE BLOOD

In the so-called blood diseases accurate diagnosis is hardly possible without the aid of laboratory methods. Thus it is impossible to differentiate anæmia of pernicious from that of other types and from many other conditions without laboratory assistance. Pernicious anæmia is probably of all diseases that most frequently diagnosed when present and undiagnosed in its absence; while investigating the now well-known action of liver in this condition some years ago I found half of the two dozen or so cases which formed the matter of the investigation in surgical wards, where they had arrived with diagnoses of gall-stones, carcinoma of the stomach, and various other conditions; on the medical side they turned up under all sorts of labels from just "anæmia" to disseminated sclerosis. Many of these cases would have escaped diagnosis in the absence of laboratory assistance. For the certain diagnosis of pernicious anæmia there is required, in addition to the ordinary examination of the blood picture, investigation of the gastric secretion as obtained by fractional test-meal for achlorhydria of the blood for bilirubinæmia, of the state of the bilirubin if found, whether free or bound, and of the mean diameter of the red cells. Failing knowledge of all these points the diagnosis cannot be regarded as firm.

To take another "blood" condition; it is hardly necessary to point out that the leukæmias cannot be separated from each other or from other cases of anæmia and glandular and splenic enlargement, nor their course followed without laboratory aid.

Shortly after I had taken over the laboratory of the Royal Hospital, Wolverhampton, a patient presented himself who had been attending the hospital for some years with a diagnosis of leukæmia. He was slightly jaundiced, showed a very large spleen, and had deep chronic ulcers almost encircling both legs just above the ankles. Examination of the blood showed a high degree of anæmia, with a moderate degree of leucocytosis, but a complete absence of embryonic types of white cells. Obviously the case was not one of leukæmia. A van den Bergh test showed the jaundice to be of the "retention" type; examination of the fragility of the red cells showed it to be markedly increased and established the diagnosis of hæmolytic anæmia or acholuric jaundice. The spleen was removed and within a year the patient was a fit man and back at work. In this case the hopeless diagnosis of leukæmia could not have been changed, the correct diagnosis made, and effective treatment instituted without the aid of laboratory methods.

GASTRIC DISORDERS

For the proper understanding of gastric disorders the services of the laboratory are often essential. The idea appears to be widespread that any pain in the stomach which may be labelled indigestion or dyspepsia calls for alkalis and slops. This is true enough of all those dyspepsias associated with hyperchlorhydria, including of course the peptic ulcers; this syndrome, however, does not by any means constitute the only one capable of producing "indigestion." There is a large class of dyspepsias associated with absent or diminished hydrochloric acid, the treatment of which does not call for alkalis and slops, but for acids and light dry diet. There are certain clinical features which may make the differential diagnosis possible, though seldom easy, but an examination of the gastric juices as yielded by the fractional test-meal is often the only means of establishing the diagnosis with certainty and therefore of initiating correct treatment.

In cases of peptic ulcer where there has been gross hæmorrhage, causing either hæmatemesis or melæna, it is difficult without the aid of the laboratory to know whether or not the hæmorrhage has ceased; in such instances examination of the stools for occult blood is called for at frequent intervals from the commencement of medical treatment and may give information of critical value. Experience has led me to believe that if occult blood remains present in the stools in any amount for eight days from the commencement of suitable medical treatment trouble is to be expected and surgical intervention should be considered.

CONTINUED FEVER

In cases of continued pyrexia the diagnosis may be impossible without recourse to the laboratory. In such cases a count of the white cells of the blood gives useful information. A leucopenia in the presence of pyrexia is almost diagnostic of enteric infection; I say almost because from time to time there may be met the case of uncomplicated "influenza" which may run a temperature for anything up to ten days; such cases will show a leucopenia which, however, will be at once replaced by a leucocytosis if lung complications appear. Leucopenia and pyrexia together will call either for culture of the blood or for investigation of the agglutinating power of the serum against the organisms of the enteric group; possibly for both; if after the first week of pyrexia the serum fails to agglutinate the organisms of the enteric group, infection by this type of organism may be dismissed from the diagnostic possibilities. The possibility of infective endocarditis may call for examination of the blood by culture; of tuberculosis for repeated examination of the sputum; of renal infection for bacteriological examination of the urine. Other types of laboratory examination may be called for as the clinical condition indicates.

NERVOUS DISORDERS

In affections of the central nervous system the examination of the cerebro-spinal fluid may give the only clue as to diagnosis and prognosis. Only too frequently this information is to the effect that the condition is hopeless for the establishment of a diagnosis of meningitis due to infection by the tubercle bacillus or one of the pyogenic cocci is tantamount to issuing a death warrant and calls for nothing but measures to tide the patient over until death supervenes; a diagnosis of meningococcal meningitis, however, calls for prompt treatment with the specific serum. The child showing all the signs and symptoms of meningitis but providing on puncture a clear fluid is known to most practitioners. In such cases the question must always arise "is this tuberculous meningitis?" Unfortunately it usually is; but not always. The fluid from a case of tuberculous meningitis may be, and usually is, water-clear; but it forms on standing a fine clot, it shows an increase of cells, these cells are mainly lymphocytes, the chlorides are diminished, there is an increase in the protein content, and it may be possible to demonstrate tubercle bacilli. Even without the demonstration of tubercle bacilli the other features above render the diagnosis certain. The signs of meningitis with a clear fluid on puncture do not, however, necessarily establish a diagnosis of tuberculous meningitis. Meningitic symptoms with a cerebro-spinal fluid, normal, but under pressure, the so-called "meningismus" is a common prodromal symptom of acute infections in children; even meningitic symptoms with diminished chlorides, if this be the sole abnormality in the cerebro-spinal flu'd, do not indicate tuberculous infection. On three occasions I have seen children with the signs of tuberculous meningitis who on puncture gave a cerebro-spinal fluid under pressure but normal except for diminution of the chlorides. In such cases it is possible to prognosticate with certainty that a pneumococcal infection, probably of the lungs, will manifest itself within the next 24 hours—if it has not already done so. The association of meningitic symptoms with acute ear trouble is well recognised; in such cases only an examination of the cerebro-spinal fluid will provide information as to whether or not meningitis is threatening or has actually developed.

NEPHRITIS

Nephritis forms a large and complicated subject into which it is impossible to enter here; a diagnosis of nephritis may be made without any very elaborate laboratory investigations, but to ascertain the type of nephritis and therefore the appropriate treatment is often not so easy. Albuminuria and anasarca may be symptoms either of acute glomerulonephritis or of the so-called nephrosis. Without careful examina-

tion of the urine and of the blood it may be impossible to establish the differential diagnosis; that this should be done is, however, of the utmost importance; for whereas the one condition is associated with urea retention and calls for diminution of the protein intake, the other gives rise to no urea retention and heavy protein feeding is an important part of the treatment. Tests of renal function requiring the aid of the laboratory are frequently necessary to determine whether or not an albuminuria indicates present and significant renal damage or not; it is true that there is no test of renal function which can be satisfactorily interpreted apart from clinical evidence, but these tests have their uses and have been the means of returning to active life many a patient who would otherwise have lived out his days as a semi-invalid.

DIABETES

The diagnosis of diabetes is not difficult and can readily be made apart from a laboratory; but the aid of the laboratory, in the estimation of the glucose tolerance by means of a blood-sugar curve after the ingestion of a given quantity of glucose, may be essential in differentiating the benign forms of glycosuria, such as the so-called renal glycosuria, from the glycosuria of diabetes. There is no other way in which this differential diagnosis may be established; to establish it means to the patient all the difference between a normal and unrestricted life and one subject to troublesome dietary regulations. There are few things more satisfactory than to be able to assure a patient who has been living under the shadow of a diagnosis of diabetes that he does not suffer from that condition and may eat and drink what he pleases.

Abuse of the Laboratory

Above I have endeavoured to outline some of the uses of the laboratory in its main function, that of diagnosis in its widest sense. Now for the abuse of the laboratory in this respect.

It is an abuse to regard the laboratory as affording a short-cut to diagnosis. There are those to whom the clinical laboratory is a place for the performance of "tests"; there is an idea abroad that the pathologist, supplied with some sort of appropriate specimen, should be able to perform some hocus-pocus which will provide a diagnosis. I have endeavoured to point out above the fact that diagnosis does not mean "tests" and is not arrived at in this way. It may be and frequently is a difficult and prolonged business requiring careful consideration of the individual case. It is true that the finding of T.B. in the sputum gives a diagnosis of pulmonary tuberculosis; though even that gives no indication of the stage or severity of the disease and, moreover, the absence of the organisms is no proof of the absence of the infection. Apart from this I know of no simple and infallible laboratory "test" in clinical diagnosis. The Wassermann reaction may appear to fulfil the requirements, but it stands alone in the technique of laboratory diagnosis in being a sort of trick, like bringing a rabbit out of a hat, and bearing no relationship to any known facts of the natural history of syphilitic infection. Even so, as everyone knows, the Wassermann reaction requires interpretation in the light of the clinical condition; a positive reaction usually means syphilitic infection, but a negative one by no means excludes it.

Pathologist and Clinician

To regard the laboratory as a place merely for the performance of "tests" constitutes one of its greatest abuses and no satisfactory results can be obtained so long as it is looked on in this light. Diagnosis is not on the whole easy; to decide upon the line of investigation most likely to be fruitful in any given case may be and often is a matter of difficulty requiring consultation between pathologist and clinician; for this reason the laboratory should be in the closet contact with the practitioners, both inside and outside the hospital, whom it is to serve; for the investigation of any but the most simple cases it is frequently desirable that practitioner and pathologist should meet in consultation at the bedside. The pathologist should be regarded as a consultant in his specialty and his services employed as such; they will only be worth employing in this way if he has had ample opportunity of controlling the results of his work in the wards. The pathological laboratory not in intimate contact with a hospital, and the pathologist without close and continuing ward experience, efficient as their work may be in other branches of the subject, cannot do really satisfactory work in clinical pathology.

Failure in close coöperation between clinician and pathologist must result in disappointment and dissatisfaction all round. The hospital laboratory should be the centre in which all those concerned with the treatment of patients, honoraries and residents, physicians and surgeons, may meet to learn the results of the investigation of their cases and to formulate further methods of attack on diagnostic problems. Its service should extend beyond the walls of the hospital to which it is attached and it should provide the same facilities and perform the same function for all the practitioners of the neighbourhood served by the hospital.

Treatment

So far as treatment is concerned the use of the hospital laboratory is mainly that of control. Treatment itself must obviously be carried out in the wards and other clinical departments. With very few exceptions the potent and in some cases specific remedies now at the disposal of the practitioner—insulin, liver extracts, pituitrin, antitoxic sera, and so forth—have been made available as the result of laboratory work, but the discovery and elaboration of such therapeutic products is the business of larger and more specialised departments than the type which we are considering; in the control of treatment, however, the hospital laboratory may play an important part.

To give a few random examples; in the treatment of anæmia with liver it is possible by an examination of the reticulocyte response within a few days of the initiation of treatment to ascertain whether or not the case will respond. To obtain such information on clinical grounds might entail a delay of weeks and the useless continuation of an expensive form of treatment.

For the successful treatment of diabetes a close watch on the blood-sugar such as can only be kept in the existence of a close contact with the laboratory is essential. Success in the treatment of diabetes largely depends upon getting the blood-sugar rapidly within normal limits and keeping it there, to do this without frequent estimations of the blood is difficult. In coma in particular this close watch on the blood-sugar is essential and may necessitate three or four determinations in the 24 hours. Probably the fear of driving the patient from diabetic straight into hypoglycæmic coma is something of a bugbear; none the less it is a possibility; certainly in coma it is impossible to use insulin in the liberal way demanded by the condition without knowledge of the variations in the blood-sugar, which may be rapid. In surgical operations upon diabetics a knowledge of the variations of the blood-sugar level with appropriate insulin dosage affords a certain guarantee against the catastrophes which in the past so frequently attended such procedures.

The laboratory may also be of use in affording the means of gauging the efficiency of the various therapeutic preparations offered by the commercial drug houses. To cite two examples only. In the early days of liver treatment various "extracts" were placed upon the markets; in the laboratory of the Royal Hospital we found that these varied considerably in potency and that the cheapest at market price was far from being the cheapest per effective unit. Similarly by following the response of the basal metabolic rate in suitable cases on thyroid treatment we have been able to ascertain that the

preparation cheapest in point of bulk is not necessarily so in point of effectiveness.

In treatment the laboratory must play a leading part in so far as therapeutic inoculation by means of vaccines is concerned; vaccines have their uses and in so far as they are required by the clinician it is the business of the pathologist to isolate the necessary organisms to prepare them and to advise as to dosage. There are those who regard the preparation of vaccines as the aim and end of the clinical pathological laboratory; they also have their reward, but to use the laboratory as a vaccine brewery at the expense of its other functions constitutes perhaps the greatest of all the abuses to which it is subject.

I have spoken above of the laboratory mainly as its work concerns the hospital. As the hospital serves as a centre for all the medical activities of its neighbourhood, so should the influence of the laboratory be felt outside its own walls. Its services and those of its director should be available along with those of the other departments of the hospital and those responsible for them, for the use and benefit of all the medical practitioners of the district served by the hospital; the laboratory should act as one of the principal agents in its neighbourhood in the promotion of the scientific outlook and in the general advancement of medicine.

WOMEN'S HOLIDAY FUND

WE have received an appeal on behalf of this Fund signed by Lady Maud Carnegie the patroness, the Bishop of London, the Rev. Father Devas, the Rev. J. Scott Lidgett, Sir George Blacker, and Mrs. Mabel Loder, chairman of the executive committee. The Fund, which helps the women of poor and crowded districts to obtain a holiday, thus often saves them from a complete breakdown in health, and this has grave consequences in places where poverty rules. Last year the Fund enabled 1,116 women and 615 babies to receive a fortnight's holiday at the seaside, but this year there is a danger of the number being reduced owing to the tightened financial circumstances of the Fund. Two pounds represents a fortnight's holiday for one of these poor people, the recipients' contributions providing the remainder of the sum required. Donations should be sent to the Secretary, Women's Holiday Fund, 76, Denison House, 296, Vauxhall Bridge-road, London, S.W.

ACUTE ERYTHEMATOUS RASH DUE TO VERONAL

Dr. W. H. GREGORY writes: "A woman, aged 52, has been a victim to rheumatoid arthritis for many years. Many hypnotics have been used to relieve restlessness at night, and veronal grs. 5 was the last one tried. This answered well for nine nights, but, on the 10th day, an intense erythematous rash came out all over the body. There were large oval macules the size of a shilling on the trunk, legs, and arms, and the face and ears were enormously swollen. The irritation on all these parts was intense. During the first three days the temperature ran between 101° and 103°, and there were severe constitutional symptoms with muttering delirium at night. The illness lasted 10 days, and for a month later there were large stains on trunk and limbs. There was considerable desquamation for a week. I understand that veronal rashes are not uncommon, but, as this is the only one I have seen in many years of practice, I have ventured to record it."

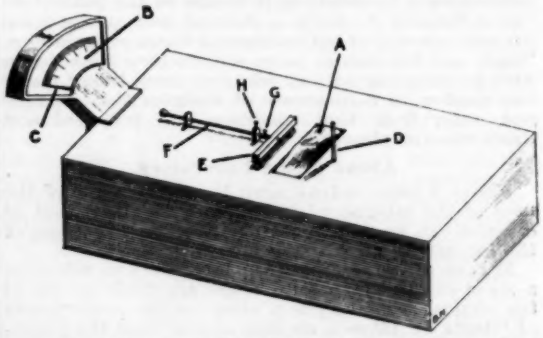
AN ENCOURAGEMENT TO INSULIN LIFE

A LAYMAN who has had diabetes for many years relates in a small book[1] experiences which may be useful in persuading patients reluctant to embark on an insulin life to reconsider their objections. He explains that he was very unwilling to start injections, and that his general health suffered severely; he eventually developed coma. He describes the general details of the management of a diabetic patient from the layman's point of view. The syringes used by him are graduated in parts of a cubic centimetre, instead of, as is now usual, in units of insulin. The point that it is wholly unnecessary to thread a wire through a needle in daily use is worth noting. The food tables are given in percentages of carbohydrate, not in the more convenient 5 g. portions. The figures given for the carbohydrate content of vegetables and fruit are not those now accepted, so that the carbohydrate content of his diet is considerably smaller than the author believes.

[1] Notes for Diabetics. By One of Them. Australia: Angus and Robertson, Ltd., Sydney. 1932. Pp. 98. 5s.

THE ARCH OF THE FOOT

Dr. H. J. ALEX DINGWALL writes: The present methods of testing the efficiency of the arch of the foot are inaccurate and unsatisfactory. Two of the methods are: (1) Asking the patient to stand on tiptoe. This has no relation to the efficiency of the arch, and only eliminates cases of rigid flat-foot. (2) Asking the patient to stand erect on one foot, and try to diminish and increase its curvature at will. To record this a mark is made on the skin over the



tubercle of the scaphoid, and the distance the scaphoid has moved indicates the efficiency of the arch. This method is somewhat inaccurate, and requires a certain degree of skill. Accordingly I have invented an instrument called "The Pedo-Planometer," and tested it on over 300 cases. This measures and records the efficiency of the arch, and measures the height of the arch in relation to the head of the astragalus as the apex. In the annexed diagram A is an arch-shaped structure on which the arch of the foot rests. B is the recording meter, with pointer, C, indicating the extent to which the arch flattens out in stance when the weight of the body falls on it. D is a standard in apposition with the head of the astragalus. E is a clamp for the outer border of the foot, adjusted by the sliding rod, F, and fixing screws, G and H.

THE DUKE OF CONNAUGHT AT ST. THOMAS'S HOSPITAL.—Last week the Duke of Connaught, the president, distributed the prizes to the successful students of the medical school at St. Thomas's Hospital. Before the distribution Sir Arthur Stanley, the treasurer, on behalf of the governors, presented to the Duke a copy, by Mr. Dorofield Hardy, of his portrait by Sir Arthur Cope in celebration of his 50 years' presidency. His Royal Highness has given the portrait to the hospital.

Appointments

BUCHANAN, T. V., M.B., Ch.B. St. And., has been appointed Asst. Visiting Medical Officer, Skin Dept., Royal Infirmary, Dundee.

CROSBIE, W. E., M.B., B.Ch. Belf., Medical Superintendent of the Alder Hey Hospital, Liverpool.

GALBRAITH, S. M., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts for Congleton.

LOBBAN, J. W., M.B., B.Ch. Aberd., Medical Officer of Health for Chester.

OLDERSHAW, H. L., M.B., B.S. Lond., Medical Officer of Health for Hampstead.